Proposed evidence review group on the community effect of insecticide treated nets

Terms of Reference

Background & rationale

Insecticide-treated nets (ITNs) are one of two core interventions recommended by WHO for malaria vector control, the other being indoor residual spraying. The current ITN recommendation is based on evidence of public health value\(^1\) that was generated through cluster randomized trials conducted between 1988 and 2013. Most, but not all, of these studies have shown that ITNs provide both personal protection to people sleeping under the net as well as protection of others community members that are not sleeping under a net. The latter has been termed ‘mass effect’, or ‘community effect’. The individual pieces of evidence on this community effect have, however, never been systematically reviewed in an attempt to generate an estimate how the absolute and relative magnitude of the effect vary across settings and with coverage.

In 2007, WHO first recommended that ITNs and their successors, the long-lasting insecticidal nets LLINs, should be deployed at full coverage of all people at risk of malaria in areas targeted for malaria prevention with ITNs \((1)\). Guidance on this ‘universal coverage’\(^2\) approach was most recently updated in December 2017 \((2)\). Despite this recommendation, which has significant resources implications, it remains unclear whether universal coverage is a goal that should indeed be pursued so as to maximize the effectiveness of ITNs, or whether lower coverage levels are likely to be sufficient to maximize the cost-benefit of this intervention. Recent analysis on ITN coverage and systems inefficiencies \((3)\) has in fact shown that significant progress in the control of malaria has been made at coverage levels well below universal coverage. There is also evidence that at high levels of coverage, there is a law of diminishing returns: each additional percentage of coverage becomes more difficult and expensive to achieve, because the remaining gaps in coverage are harder to identify and target. In other words, as coverage increases, the cost-per-additional-person-covered also increases.

At the same time, financing for malaria control has plateaued at a level where less than half of the estimated funding required to achieve the targets of the *Global Technical Strategy for Malaria 2016–2030* is available \((4)\). In practice, national malaria programme managers therefore often face situations where available resources are insufficient to provide access to all interventions, including universal ITN coverage, for everyone in all areas at risk. Hence, resources available for malaria control need to be prioritized across the available interventions with a view to achieving maximum impact. This need for prioritization is about to become even more urgent and obvious, with the emergence and spread of insecticide resistance, and the

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1 A product has public health value if it has proven protective efficacy to reduce or prevent infection and/or disease in humans.

2 Universal coverage is defined as: access to and use of appropriate interventions by the entire population at risk of malaria. http://apps.who.int/iris/bitstream/handle/10665/208815/WHO_HTM_GMP_2016.6_eng.pdf
arrival of new vector control tools that can manage or mitigate such resistance, but are more expensive.

In this context, where prioritization of one intervention and the level of coverage at which it is deployed will come at the expense of coverage and/or quality of another intervention, further clarity on the community effect of ITNs is becoming fundamental to informing potential changes in WHO’s current policy recommendations. Of specific interest in this context is the extent to which a community effect of ITNs has been documented, and the relationship between this effect and varying levels of coverage. Another critical question is the relative degree to which insecticide resistance may be reducing (a) the personal protection and (b) the community effect. This is critical but hard to measure, and may be different for different resistance mechanisms.

WHO has commissioned a systematic review of the literature, complemented by some mathematical modelling, to further explore the documented community effect and how it varies across coverage levels. Once the review has been completed, WHO would like to convene an Evidence Review Group (ERG) to critically examine the findings and their implications on WHO policy recommendations.

Objectives of the ERG

1) to appraise a systematic review of the available evidence on the community effect of ITNs, which will include an analysis of the presence/absence/variations of this effect depending on geographical setting, coverage level and the prevalence/intensity of pyrethroid resistance;

1) to review the WHO glossary to verify whether definitions regarding ITNs and their personal and community effect are appropriately captured. If required, the ERG will need to recommend additions or edits to the glossary to ensure that the definitions are valid and appropriate;

2) to advise WHO on whether the findings from the review of the evidence-base on the community effect of ITNs warrant a revision of current WHO guidance on the deployment of ITNs

References


