



Fourth meeting of the Vector Control Technical Expert Group (VCTEG)

Meeting report, 13–15 March 2017
Geneva, Switzerland



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Organization

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SUMMARY

On 13–15 March 2017, the Vector Control Technical Expert Group (VCTEG) of the WHO Global Malaria Programme (GMP) convened to review updates and progress on issues related to the implementation of malaria vector control including programme management, and to provide advice to GMP with respect to related areas of work.

The meeting commenced with an overview of recent key initiatives of GMP in entomology and vector control, including the revised WHO process for evaluation of vector control products. Sessions were then convened that sought guidance from VCTEG on: (1) a draft information note on WHO's current policy recommendations for malaria vector control interventions; (2) a guideline for malaria vector control; (3) a draft operational manual on malaria entomological surveillance and vector control monitoring and evaluation; (4) a draft framework on *Monitoring and study designs for evaluating effectiveness of synergist and other next-generation LLINs*; (5) recent developments in the area of nets treated with a pyrethroid and the synergist piperonyl butoxide (PBO); (6) an exploratory survey on perceptions regarding effectiveness of long-lasting insecticidal nets (LLINs) and indoor residual spraying (IRS); (7) an analysis of effects of user preferences on insecticide-treated net (ITN) use; and (8) a draft framework for national vector control needs assessment. Finally, a session was convened to discuss emerging issues raised by country programmes and their development partners, with a view to determining whether these constitute priority areas of work for consideration by GMP.

At the closing session, the key conclusions and recommendations VCTEG provided to GMP were as follows:

- **Overview of WHO malaria vector control policy recommendations and their applicability to current and future products:** The VCTEG recommended that WHO revise the draft document in line with the comments received during the open session, namely to provide greater clarity on: the definition of key terms (e.g. WHO policy recommendation, product class, product claim); whether combination LLINs have a policy recommendation; whether policy recommendations should be based on chemistry or outcomes as defined in Target Product Profiles whether both policy recommendations and Prequalification listings are open to revision. The VCTEG noted that a number of meeting participants and observers had raised concerns regarding potential barriers to market entry for new vector control tools that require a full policy recommendation prior to deployment even at small/pilot scale. In response, WHO underscored the need for any recommendations to be based on sufficient evidence to protect public health and optimize the use of limited resources. The document and the inputs received from the VCTEG were to be presented to the Malaria Policy Advisory Committee for further guidance at their meeting to be convened 22 to 24 March 2017.
- **Malaria vector control guideline:** The VCTEG reviewed the scope, proposed contents and development plan for the guideline. Specific key questions based on intended recommendations in PICO (i.e. population, intervention, comparator and outcomes) format and outcomes to be assessed in each systematic review were then discussed and refined during group work sessions. Outcomes were ranked by relevance into critical, important and non-important for each key question. VCTEG suggested that eco-epidemiological characteristics of endemic areas be taken into consideration in the reviews. As part of next steps, the systematic reviews and GRADE tables will be presented to the VCTEG for review, input and formulation of recommendations at its next meeting in November 2017.
- **Operational manual on malaria entomological surveillance and vector control monitoring and evaluation:** VCTEG advised that the operational manual be restructured and revised, including clear differentiation of guidance and case studies taking into consideration the available entomological surveillance manuals in WHO regions and countries. The group also

recommended that already existing manuals be reviewed in an effort to align across similar WHO documents. A proposed revised structure will be circulated by WHO to the VCTEG for input. Following agreement on structure, WHO will revise the manual and circulate it to VCTEG members for input.

- **Framework to evaluate the cost-effectiveness of next generation LLINs:** The VCTEG recommended that the framework be included as a background document for the WHO Vector Control Advisory Group (VCAG) meeting on trial design to be held on 24–25 April 2017, and that the group that developed the framework (US Centers for Disease Control and Prevention (CDC) and US President’s Malaria Initiative (PMI)) be invited to the meeting. It was requested that the outcomes of the trial design meeting, as well as those of the VCAG meeting, should be communicated to VCTEG. WHO will ensure that there is a clear interface between VCAG and VCTEG, as VCTEG will be responsible for supporting the development of deployment guidance on the basis of VCAG recommendations on public health value for new interventions.
- **Developments regarding LLINs treated with a pyrethroid and the synergist PBO:** Based on recent findings from a trial conducted in Tanzania that compared PBO LLINs to pyrethroid-only LLINs, the VCTEG recommended that WHO seek endorsement from MPAC to reconvene an Evidence Review Group (ERG) by July to consider whether current policy recommendations on PBO LLINs require revision. All new data should be reviewed, including trial results from Tanzania and data reviewed by the WHO Pesticide Evaluation Scheme (WHOPES) since 2015.
- **Exploratory survey on perceptions of effectiveness regarding LLINs and IRS:** The VCTEG recommended that the survey be published by the author, potentially with a commentary by GMP. More generally, the VCTEG recommended that GMP increase efforts to ensure the wide dissemination and uptake of WHO strategy and policy documents. Webinars and dissemination through WHO regional and country office were recognized as effective strategies. The need to make guidance available in different languages was also highlighted, as was the need to provide support to countries in adapting global guidance to regional, national and subnational specificities.
- **Effect of user preference on ITN use:** The VCTEG reviewed the report of an ITN user preference study and recommended review of current WHO recommendations on achieving universal coverage with LLINs (available at http://www.who.int/malaria/publications/atoz/who_recommendation_coverage_llin/) to determine if and how these could be updated to include the information from the study. WHO was requested to circulate any proposed revisions to existing WHO guidance to VCTEG for review. The study on user preferences results should be published by the authors independently.
- **Draft framework for national Vector Control Needs Assessment (VCNA):** The VCTEG acknowledged the comprehensiveness of the document and recommended that the framework be revised based on the comments received during the meeting, namely: inclusion of schistosomiasis; increased emphasis on strengthening of national regulatory authorities for pesticide management; referral to public health entomology technicians as a core part of national public health entomology human resources; and, inclusion of a section on the use of outcomes from a VCNA to determine next steps. The VCTEG recommended that the framework be finalized for publication following these revisions.

In addition to the above, the VCTEG discussed the following emerging issues with a view to determining whether these constitute priority areas of work for consideration by GMP:

- *Guidance on disposal of nets:* The VCTEG agreed that the existing guidance on disposal of old LLINs remains valid and does not require updating. The VCTEG suggested that organizations

such as Alliance for Malaria Prevention or the Roll Back Malaria Social and Behavior Change Communication Working Group could provide practical guidance on repurposing of LLINs. The group recommended that WHO engage with these organizations to ensure appropriate guidance is developed that includes an emphasis on preferential use of new nets.

- *Post-market surveillance (PMS) of LLINs and IRS:* The VCTEG recognized the importance of this topic, which is currently under discussion by the Bill and Melinda Gates Foundation-funded Innovation to Impact (I2I) procurement work-stream. It was decided that VCTEG should be involved, for example by reviewing any outcomes of the I2I work-stream and potentially guiding subsequent data collection. It was also suggested that WHO provide guidance to procurement agencies on the operational deployment of new vector control tools as appropriate in line with WHO's primary role of supporting Member States. It was noted that PMS may be an opportunity to collect data to support programmatic decision-making, for example to differentiate performance between individual products. The need for a system to feedback PMS data into the revised WHO process for evaluation of vector control products was also flagged.
- *Decision framework for Insecticide Resistance Management (IRM):* The VCTEG recommended that a decision framework be developed by a working group including VCTEG members as well as other experts in this field. As a next step, WHO will develop draft Terms of Reference for the working group, for VCTEG input. It was also recommended that the scope and nature of this operational guidance be carefully considered in light of: a) the diversity of country situations and capacities; and, b) existing national committees and regional networks that currently support the use of resistance data in decision-making. The framework should also consider the future availability of new interventions, and should consider proactive prevention of resistance in addition to resistance management. Finally, the VCTEG recognized the need for stronger implementation support on IRM and on interpretation of monitoring result alongside the decision framework, as countries are currently often unable to implement IRM plans due to a lack of human and financial resources, as well as due to limited technical knowledge in this area. Lack of IRM structures and centralized specimen testing to identify mechanisms of insecticide resistance was noted as a specific gap.
- *Differential insecticide susceptibility as criteria for intervention selection:* The VCTEG recommended that further research be conducted prior to considering any policy recommendations in this area.

BACKGROUND

The WHO Global Malaria Programme (GMP) convened the Vector Control Working Group (VCTEG) for its 4th meeting in Geneva, Switzerland from 13 to 15 March 2017. The VCTEG reviews updates and progress on issues related to the implementation of malaria vector control, including issues related to programme management, and provides guidance to GMP. Over the course of the three-day meeting's open sessions, 9 VCTEG members, 6 temporary advisers, the WHO Secretariat and 6 observers discussed key issues related to malaria vector control implementation. Conclusions and recommendations were agreed upon in a final closed session.

OVERVIEW OF VCTEG

The GMP Director opened the meeting by reviewing the role of VCTEG in the broader WHO policy making process, which includes ad-hoc Evidence Review Groups (ERGs) focused on specific research questions, technical expert groups (TEGs) that are standing WHO committees, and MPAC. The VCTEG, established in 2013, is tasked with reviewing and developing guidance on the implementation of malaria vector control including programme management. The TEG may also provide advice to WHO/GMP on activities and key strategic questions. A separate committee, the Vector Control Advisory Group (VCAG), focuses on new vector control interventions that are under development for malaria and other vector-borne diseases.

The VCTEG is comprised of up to 13 members who are engaged for a 3-year commitment. TEG members shall serve in an independent, personal and individual capacity. Decisions are made based on consensus, with majority and minority views reported if no consensus is reached. A limited number of observers can be invited to participate in VCTEG meetings at their own expense in order to act as a resource and clarify institutional positions as required. Only TEG members can participate in the formulation of recommendations by consensus.

DECLARATION OF INTERESTS

The following interests were declared:

- Dr J. Hii reported research funding from UK Department for International Development (DFID), PMI/CDC, and SC Johnson.
- Dr J. Lines reported consultancy fees from DFID.
- Dr M. Rowland reported research grants from Sumitomo Corporation, Bayer AG, BASF, US Agency for International Development (USAID), the UK Medical Research Council.
- Dr A. Wilson reported research funding from the Bill and Melinda Gates Foundation and the Wellcome Trust.
- Mr L. Choi reported a research grant from DFID.

The WHO Secretariat assessed the above interests and determined that these were not directly related to the topics of the meeting. WHO therefore concluded that the declared interests did not constitute conflicts that should preclude participation in the meeting, subject to public disclosure of such interests.

OVERVIEW OF PROCEEDINGS

Update on recent GMP initiatives on malaria entomology and vector control

The GMP Director and Coordinator of the Entomology and Vector Control unit (EVC) provided an update on recent initiatives:

- **Risks associated with the scale-back of vector control:** The finalized 2015 *Information note on the risks associated with the scale-back of vector control in areas where malaria transmission has been reduced* (available at: <http://www.who.int/malaria/publications/atoz/scale-back-vector-control/>) as was previously reviewed by VCTEG was presented.

- **Evidence-base for PBO LLINs:** The finalized 2015 document on *Conditions for use of long-lasting insecticidal nets treated with a pyrethroid and piperonyl butoxide* (available at: <http://www.who.int/malaria/publications/atoz/use-of-pbo-treated-llins/>) as based on the outcome of an ERG was presented. Recent data from a trial conducted in Tanzania will be reviewed during the meeting to determine next steps.
- **Malaria terminology:** An updated glossary for malaria was published in 2016 (available at: <http://www.who.int/malaria/publications/atoz/malaria-terminology/>).
- **WHO-coordinated multi-country evaluation of the implications of insecticide resistance (IIR) for malaria vector control:** The outcomes from the completed 5-country evaluation were presented (available at: <http://www.who.int/malaria/publications/atoz/insecticide-resistance-implications/>). The final global analysis of this evaluation is expected to be published by Q3 2017.
- **Revised test procedures for insecticide resistance monitoring in malaria vector mosquitoes (adults):** A 2nd Edition of the test procedures document, including a comprehensive flowchart, was published in November 2016 (available at <http://www.who.int/malaria/publications/atoz/9789241511575/>). It includes bioassay methods for determining resistance intensity and for determining the involvement of metabolic resistance mechanisms.
- **Framework for a national monitoring and management plan for insecticide resistance in malaria vectors:** The framework, as previously reviewed by VCTEG, was published in March 2017 (available at: <http://www.who.int/malaria/publications/atoz/9789241512138/>). This aims to provide practical guidance to countries on how to develop a national insecticide resistance monitoring and management plan.
- **Draft Global vector control response:** The urgent need for an initiative to improve vector control globally to address vector-borne diseases more broadly was identified, particularly due to recent Zika virus, yellow fever, dengue and other vector-borne disease outbreaks. Development of the response has been a joint effort of the WHO GMP and the Department of Control of Neglected Tropical Diseases (NTD) as well as the Special Programme for Research and Training in Tropical Diseases (TDR). The draft strategy will be presented for consideration at the World Health Assembly in May (available at: <http://www.who.int/malaria/global-vector-control-response/>). This response seeks to lay the foundation for effective locally adapted sustainable vector control.
- **Online tool for mapping biological threats to malaria control and elimination:** The online tool originally developed to map entomological data is being adapted to include vector insecticide resistance, *HRP2/HRP3* deletion, and antimalarial drug efficacy and drug resistance data. It is anticipated that a beta version will be available by mid-2017.
- **Elimination activities:** A *framework for malaria elimination*, has been developed based on a review of the elimination field manual (available at: <http://www.who.int/malaria/publications/>

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