

Updates from the Global Malaria Programme

Vector control and Insecticide Resistance Unit

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World Health
Organization



Aims of Vector Control and Insecticide Resistance Unit

- Support optimal resource use for malaria vector control by WHO Member States and by their implementing partners
 - To support generation and reporting of data related to malaria vectors and interventions
 - To develop or revise evidence-based WHO recommendations and programmatic guidance on vector surveillance and control, including for new tools
 - To support timely dissemination of vector surveillance and control guidance and contribute to its implementation through technical support and capacity building activities based on identified priorities

Activities in the last year

Plans for the coming year

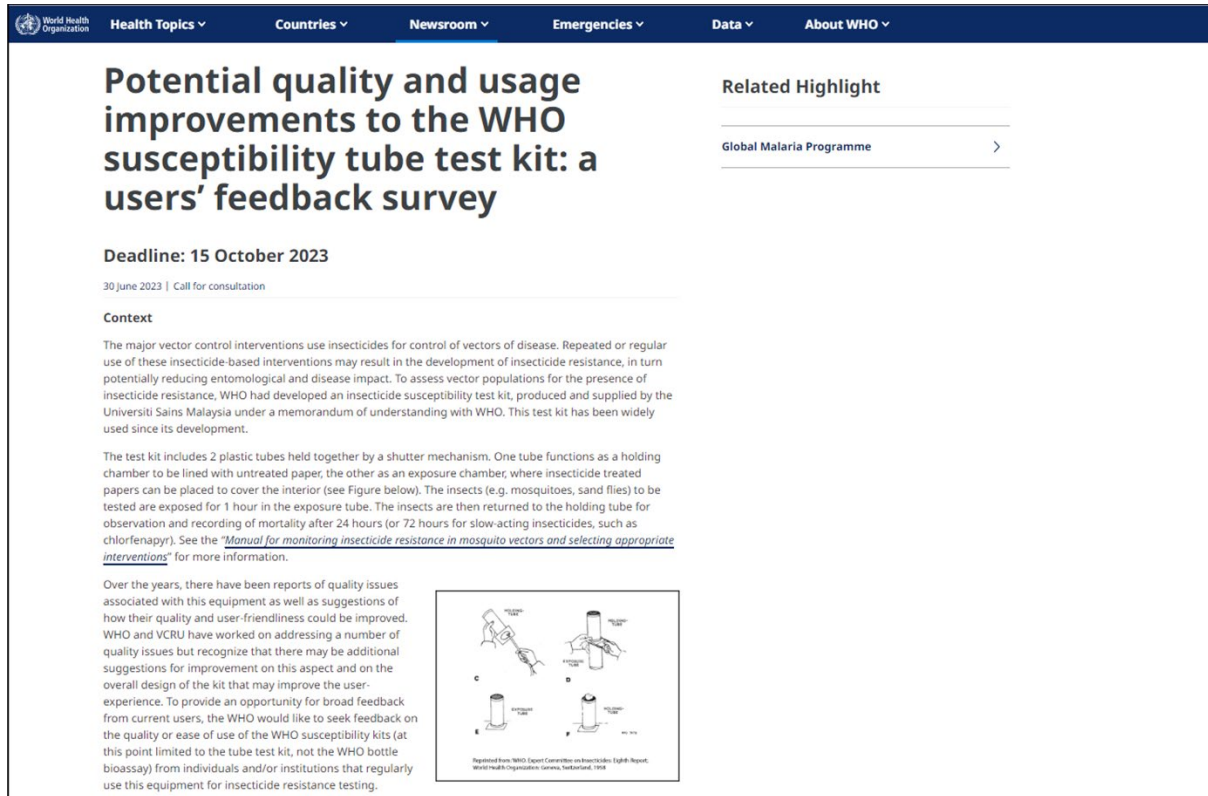
Activities in the last year



Insecticide resistance and other threats

Survey on tube tests

- Online survey in 2023 (30 June to 15 October) to get feedback on WHO susceptibility tube test kit



The screenshot shows a WHO news article with the following content:

Potential quality and usage improvements to the WHO susceptibility tube test kit: a users' feedback survey

Deadline: 15 October 2023

30 June 2023 | Call for consultation

Context

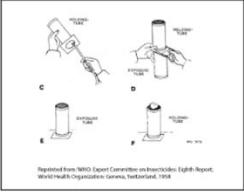
The major vector control interventions use insecticides for control of vectors of disease. Repeated or regular use of these insecticide-based interventions may result in the development of insecticide resistance, in turn potentially reducing entomological and disease impact. To assess vector populations for the presence of insecticide resistance, WHO had developed an insecticide susceptibility test kit, produced and supplied by the Universiti Sains Malaysia under a memorandum of understanding with WHO. This test kit has been widely used since its development.

The test kit includes 2 plastic tubes held together by a shutter mechanism. One tube functions as a holding chamber to be lined with untreated paper, the other as an exposure chamber, where insecticide treated papers can be placed to cover the interior (see Figure below). The insects (e.g. mosquitoes, sand flies) to be tested are exposed for 1 hour in the exposure tube. The insects are then returned to the holding tube for observation and recording of mortality after 24 hours (or 72 hours for slow-acting insecticides, such as chlorfenapyr). See the ["Manual for monitoring insecticide resistance in mosquito vectors and selecting appropriate interventions"](#) for more information.

Over the years, there have been reports of quality issues associated with this equipment as well as suggestions of how their quality and user-friendliness could be improved. WHO and VCRU have worked on addressing a number of quality issues but recognize that there may be additional suggestions for improvement on this aspect and on the overall design of the kit that may improve the user-experience. To provide an opportunity for broad feedback from current users, the WHO would like to seek feedback on the quality or ease of use of the WHO susceptibility kits (at this point limited to the tube test kit, not the WHO bottle bioassay) from individuals and/or institutions that regularly use this equipment for insecticide resistance testing.

Related Highlight

Global Malaria Programme >



Registered from WHO Expert Committee on Insecticides. EIGH Report. World Health Organization, Geneva, Switzerland, 1978.

- **Plastic** – costs of alternative plastics to be investigated
- **Glue** – replaced with acoustic transducer glue in 2019
- **Mesh screen** – finer to prevent escape of sandflies, must also be durable
- **Spring clips** – number to be increased

An. stephensi in Africa

- Partnership convening: A regional response to the invasion of *An. stephensi* in Africa, 8-10 March, Addis Ababa
- Quarterly calls: irishs@who.int
- Malaria Threats Map
- Surveillance and control of *Anopheles stephensi*: Country experiences

Partners convening: a regional response to the invasion of *Anopheles stephensi* in Africa

Meeting report
8-10 March 2023

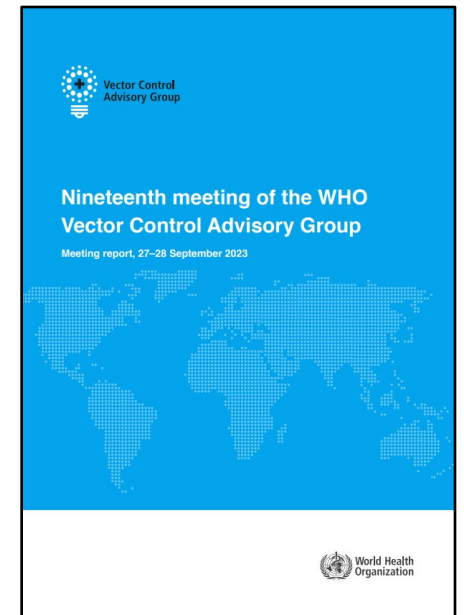
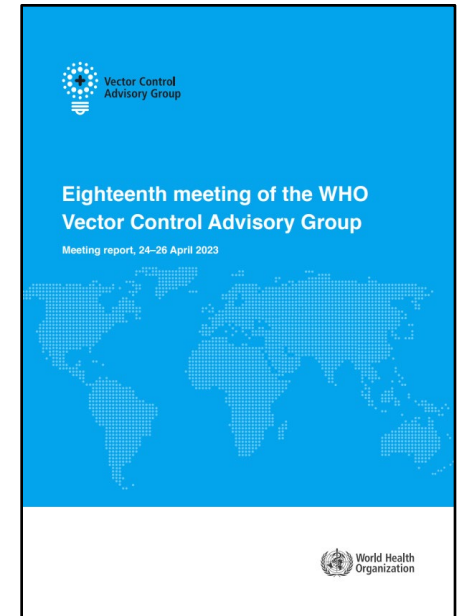


Guidance and guidelines

Vector Control Advisory Group

- 18th meeting (24-26 April 2023)
- 19th meeting (27-28 September 2023)
- 20th meeting (25-28 March 2024)

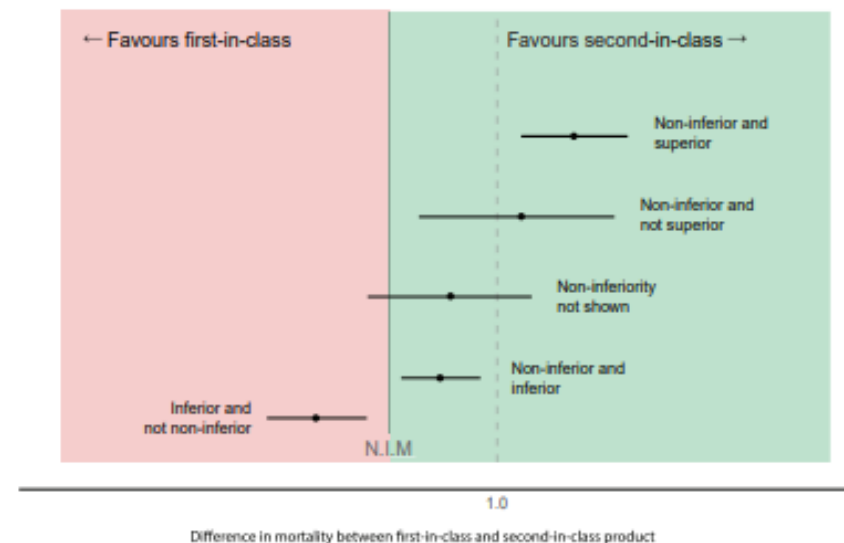
- topical repellents
- eave tubes
- sterilization of male mosquitoes
- systemic endectocide treatment for Lyme disease
- bait stations
- spatial repellents
- systemic endectocide treatment
- reduction of pathogen transmission induced by *Wolbachia*



Comparative efficacy

- Consultation to evaluate the non-inferiority of 4 products (3 ITN, 1 IRS) and further develop methods of comparative efficacy testing
- Protocol to be published in April
- Norms, standards and processes underpinning development of WHO recommendations on vector control being updated

Fig 1. Schematic figure depicting the various outcomes of comparative efficacy assessments for mortality



Technical consultation to assess comparative efficacy of vector control products

Meeting report,
5 and 9 June 2023



Guidelines

- Update 16 October 2023

Strong recommendation for, Moderate certainty evidence

Pyrethroid-chlorfenapyr ITNs vs pyrethroid-only LLINs (2023)

Pyrethroid-chlorfenapyr ITNs should be deployed instead of pyrethroid-only LLINs for prevention of malaria in adults and children in areas with pyrethroid resistance.

Conditional recommendation for, Moderate certainty evidence

Pyrethroid-chlorfenapyr ITNs vs pyrethroid-PBO ITNs (2023)

Pyrethroid-chlorfenapyr ITNs can be deployed instead of pyrethroid-PBO ITNs for prevention of malaria in adults and children in areas with pyrethroid resistance.

Conditional recommendation for, Moderate certainty evidence

Pyrethroid-pyriproxyfen ITNs vs pyrethroid-only LLINs (2023)

Pyrethroid-pyriproxyfen ITNs can be deployed instead of pyrethroid-only LLINs for prevention of malaria in adults and children in areas with pyrethroid resistance.

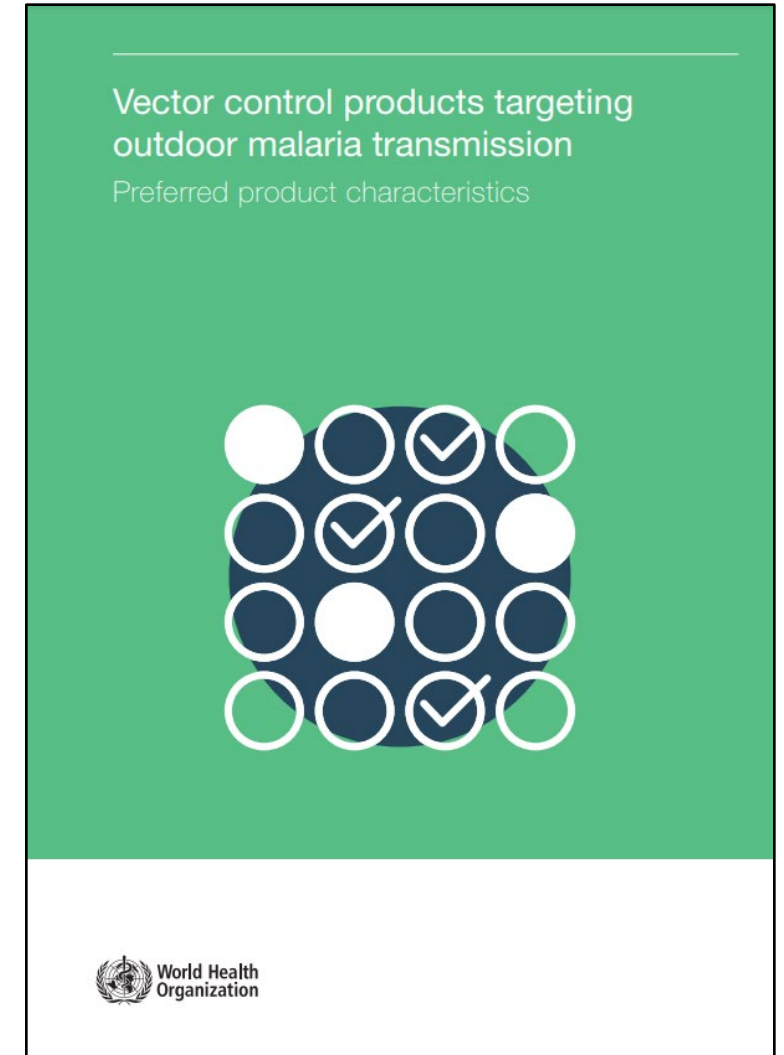
Conditional recommendation against, Moderate certainty evidence

Pyrethroid-pyriproxyfen ITNs vs pyrethroid-PBO ITNs (2023)

Pyrethroid-pyriproxyfen ITNs are not recommended for deployment over pyrethroid-PBO ITNs for prevention of malaria in adults and children in areas with pyrethroid resistance.

Preferred product characteristics

- 4 April 2023 Vector control products targeting outdoor malaria transmission
 - Indications
 - Potential use cases
 - Target populations
 - Efficacy (epidemiological/entomological)
 - Access and affordability
 - Feasibility
 - Regulatory
 - Product quality
 - End user suitability

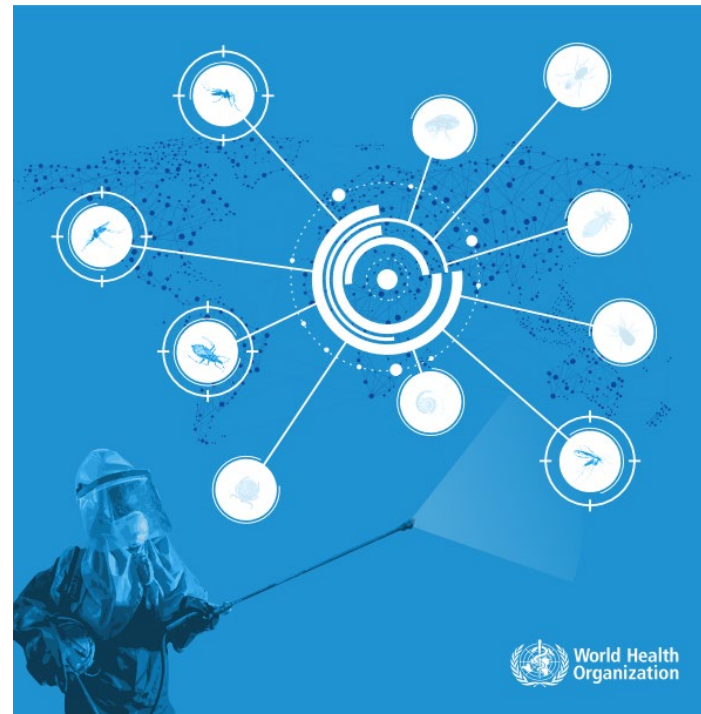


Operational manual on indoor residual spraying

- 13 February 2024

Operational manual on indoor residual spraying

Control of vectors of malaria, *Aedes*-borne diseases, Chagas disease, leishmaniases and lymphatic filariasis



- Expanded to provide guidance on IRS for other vector borne diseases
- Four sections
 - Concepts of IRS
 - Requirements of an IRS programme
 - Operational aspects
 - Monitoring and evaluation

Examples of regional offices providing support

- PAHO
 - Developing guidance on operational LLIN monitoring
 - Urban malaria on the agenda
- EMRO
 - Training of trainers in morphological identification (Oman)
- AFRO
 - Supported countries on VCNAs, monitoring resistance
 - African Network for Vector Resistance
 - AFRO II project funding completed



Plans for the coming year



Plans for coming year

- Insecticide resistance and other threats
 - Multi-centre study to define discriminating doses of broflanilide and isocycloseram
 - Quarterly calls for *An. stephensi* updates
 - Technical consultation to learn from experience in testing new compounds over the past few years
 - Cost of goods analysis on insecticide treated test papers and kits
- Guidance and guidelines
 - Comprehensive update of LSM manual
 - Systematic reviews on spatial repellents and ATSBs
 - VCAG meetings
 - Update of Norms, standards and processes underpinning development of WHO recommendations on vector control
 - Evolution and expansion of MINT tool

Change of unit head

Jan Kolaczinski leaving GMP after 7 years of service



Daniel Ngamije to serve as acting Unit head until the position is filled

If we can be of service, please be in touch

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Thank you

Thank you

For more information, please contact:

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