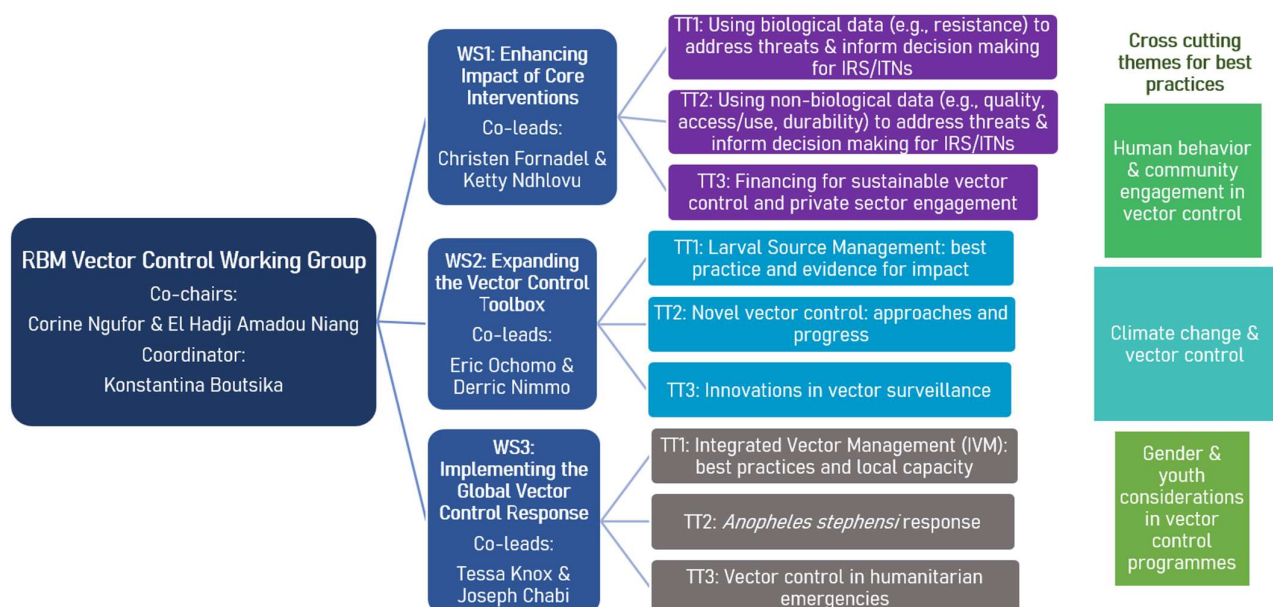


Vector control has been shown to achieve quick and remarkable reductions in malaria transmission in many eco-epidemiological settings. It remains key to achieving malaria elimination.

Global malaria progress has stalled in recent years, and a “business as usual” approach will take countries and their development partners’ further off course. In the 2023 world malaria report, climate change was identified as a major threat to progress against malaria, which only further compounds the threats of insecticide resistance in vector mosquitoes, limitations around financial support, gaps in the vector control toolbox and challenges for National Programs to meet the needs of entomological monitoring with scarce resources available. There is an urgent need for innovation and new tools to expand the current intervention paradigms and increase opportunities for more cost-effective and sustainable vector control.

The Vector Control Working Group (VCWG) therefore promotes basic research and development into new tools, and the translation of vector control priorities into operational research, combining the input of its constituent national and international academia/research and private sector development partners. Through increased collaboration with Regional Networks, the VCWG ensures that their specific needs are fully considered in deliberations on global malaria strategies.

Within a resource-constrained environment, knowledge sharing is key. The diversity of the VCWG membership allows for rich dialogue and mutual learning for the development of more robust and adaptive responses to challenges associated with enhancing the impact of core interventions (ITNs and IRS), expanding the vector control toolbox and implementing the WHO Global Vector Control Response. The VCWG provides a forum where all the partners from country programs, international organizations, academia, the private sector and others, can come together to build consensus on the challenges, gaps and opportunities in vector control.



The updated structure of the **Vector Control Working Group (VCWG)** as of **October 2024** reflects our ongoing efforts to enhance coordination, collaboration, and impact in the field of vector control. The VCWG is now organized into **three work streams**, each comprising **three task teams**. Additionally, there are **three cross cutting themes** that will guide the implementation of best practices across all work streams and task teams.

Work Streams:

Work Stream 1 (WS1): Enhancing Impact of Core Interventions

Work Stream 2 (WS2): Expanding the Vector Control Toolbox

Work Stream 3 (WS3): Implementing the Global Vector Control Response

Task Teams:

Each work stream includes three task teams focused on specialized areas of vector control:

- WS1 TT1: Using biological data (e.g., resistance) to address threats and inform decision making for IRS/ITNs
- WS1 TT2: Using non-biological data (e.g., quality, access/use, durability) to address threats and inform decision making for IRS/ITNs
- WS1 TT3: Financing for sustainable vector control and private sector engagement
- WS2 TT1: Larval Source Management: best practice and evidence for impact
- WS2 TT2: Novel vector control: approaches and progress
- WS2 TT3: Innovations in vector surveillance
- WS3 TT1: Integrated Vector Management (IVM): best practices and local capacity
- WS3 TT2: *Anopheles stephensi* response
- WS3 TT3: Vector control in humanitarian emergencies

Cross-Cutting Themes:

In addition to the work streams and task teams, there are three cross cutting themes that ensure the application of best practices across all areas of vector control:

Theme 1: Human behavior and community engagement in vector control

Theme 2: Climate change and vector control

Theme 3: Gender and youth considerations in vector control programmes

You can find more detailed descriptions of the work streams, task teams, and cross cutting themes below. This updated structure aims to streamline our efforts and enhance collaboration across teams to address critical public health challenges related to vector control.

Work stream 1: Enhancing Impact of Core Interventions

ITNs and IRS are core vector control interventions. They have played a significant role in our progress against malaria, but their effectiveness is endangered by both biological and non-biological threats, as well as a lack of sustainable financing. VCWG WS1 aims to help tackle the challenges that ITNs and IRS face.

Task Team 1: Using biological data (e.g., resistance) to address threats and inform decision making for IRS/ITNs

Insecticide resistance is a major threat to the continued effectiveness of IRS and ITNs. In particular, as more countries switch to deploying chlorfenapyr-pyrethroid nets, it is important to understand where different net types should be prioritized and how to monitor for the potential of chlorfenapyr resistance. In addition, it will be important to develop susceptibility methods for novel active ingredients that will be used on the next net/IRS products coming to market.

Task Team 2: Using non-biological data (e.g., quality, access/use, durability) to address threats and inform decision making for IRS/ITNs

There are numerous non-biological factors that can influence the effectiveness of both ITNs and IRS. Data on ITN quality, access, use, physical and chemical durability, and attrition are important for making decisions on ITN procurement and targeting. Likewise, data on IRS quality, acceptance, and residual efficacy on various surface types are important for IRS decision making.

Task Team 3: Financing for sustainable vector control and private sector engagement

As donor budgets stagnate, there is a need to further engage with private sector actors in endemic countries to help support malaria programs. Mapping of private sector actors and development of case studies can help national malaria programs advocate for domestic resource mobilization and engagement for filling implementation and financing gaps as part of country co-financing requirements.

Work Stream 2: Expanding the Vector Control Toolbox

The primary aim of this work stream is to provide a robust platform where we can convene meetings, workshops, and other forums to highlight the innovations, evaluation, scale-up and impact of novel vector control approaches and advances in surveillance technology beyond core interventions. The key focus will be to facilitate communication and the dissemination of information with various stakeholders, including national control programs, product manufacturers, academia and implementers, to complement existing core interventions. The outcome is the scaling up the various novel tools to save lives within the malaria-endemic regions.

Task Team 1: Larval Source Management: best practice and evidence for impact

Review technology for LSM, e.g., GIS, satellite imagery, drone use, new application technology, etc. Conduct a landscape analysis to consolidate existing knowledge and gaps pertaining to LSM implementation: Identify countries currently implementing LSM. Highlight challenges, success, and best practices, with particular attention to the use of drones/AI technology. Identify and document perspectives from current and potential funders/stakeholders. Review operational LSM in national malaria programmes and collate and share evidence of impact, training, and technical support needs.

Task Team 2: Novel vector control: approaches and progress

Develop and maintain an inventory of new vector control tools and approaches, including repellents, endectocides, ATSBs, SIT, genetic control, etc. With appropriate stakeholders, convene meetings, workshops, and other forums to produce a framework for actively tracking and sharing updates on new vector control paradigm roadmaps. Identify gaps in

vector control appropriate for novel tool development and support and coordinate dialogue between national programs, product manufacturers, academia and implementers to find innovative solutions. Share VCAG updates on new paradigms as part of paradigm roadmap tracking. Elevate national malaria program operational research questions for vector control beyond LLINs and IRS.

Task Team 3: Innovations in vector surveillance

Develop and maintain an inventory of new vector surveillance tools and approaches, including smart traps, age-grading tools, field-based PCR, etc. Develop a framework for actively tracking and sharing updates on new surveillance tools and how they can be used for the continuous and systematic collection, analysis, and interpretation of disease-specific data, as well as using that data in the planning, implementing, and evaluating public health practice. Elevate national malaria program operational challenges and how these new tools could help identify and target areas and population groups most severely affected by malaria, detect and respond to epidemics promptly, deliver the necessary interventions effectively and advocate for resources required to implement effectively.

Work Stream 3: Implementing the Global Vector Control Response

Work Stream 3 focuses on coordinating efforts to review, document, and improve global vector control strategies. Specific task teams address key areas like Integrated Vector Management best practices, responding to the spread of *Anopheles stephensi*, and adapting vector control tools for use in humanitarian emergencies. The work stream emphasizes collaboration, research, and capacity building to enhance the effectiveness of vector control measures across different regions and contexts.

Task Team 1: Integrated Vector Management (IVM): best practices and local capacity

Task Team 1 will focus on documenting best practices in Integrated Vector Management (IVM) and reviewing implementation of the *Global Vector Control Response 2017-2030*. This will include identifying priority topics for reviews or case studies, sharing information through virtual meetings, identifying training opportunities, and supporting collaboration with research and education institutions to build locally-led and -funded action across countries.

Task Team 2: *Anopheles stephensi* response

Task Team 2 will focus on addressing the spread of *An. stephensi* by documenting best practices and research findings related to its surveillance and control. The team will produce literature reviews and case studies, organize virtual meetings to share insights, and compile country action plans and protocols. They will also collaborate with relevant task teams, WHO, and research groups to enhance understanding of *An. stephensi* spread and mitigation strategies.

Task Team 3: Vector control in humanitarian emergencies

Task Team 3 will focus on improving vector control in humanitarian emergency settings by identifying suitable tools and documenting best practices, and by supporting the development and deployment of new tools and emerging technologies through defining use case scenarios and research priorities. The team aims to effectively share knowledge, develop guidance, and identify training opportunities in collaboration with international organizations to better support effective vector control in emergency settings.

Cross cutting themes for best practices

To ensure that major priorities for malaria vector control are adequately addressed across the structure of the VCWG, three cross-cutting priority themes have been identified. The VCWG in collaboration with partners and other RBM working groups will organize short-term activities e.g. webinars, presentations at annual meetings etc. to facilitate discussions around these themes:

Theme 1: Human behavior and community engagement in vector control

Progress in the fight against malaria has stalled in recent years, highlighting the importance of new interventions and tailored approaches. A critical factor that must be considered across contexts and interventions is human behavior. No matter how efficacious, vector control tools will remain ineffective if communities do not engage with them or use them regularly. Entering the next chapter in the fight against malaria, VCWG sees a critical opportunity to elevate the role of social and behavior change to increase the impact and sustainability of malaria control and elimination efforts. This includes working across Work Streams to identify opportunities to remove barriers to use of existing tools at all levels, champion human-centred and inclusive approaches to design and implementation of new tools, and move toward long-term solutions led by affected communities.

Theme 2: Climate change and vector control

The WHO has identified climate change as the single greatest health threat to humanity. The 2023 World Malaria Report features a dedicated chapter on the intersection of climate change and malaria. Climate variability, including changes in temperature and rainfall, affects the behavior and survival of the malaria-carrying Anopheles mosquito. Rising temperatures and shifting weather patterns are altering the spread of vector-borne diseases, significantly impacting human health and straining health systems. Extreme weather events, such as heatwaves and flooding, may increase malaria transmission and burden. Climate-related population displacement can lead to higher malaria incidence as non-immune individuals move to endemic areas. The VCWG recognises the urgent need to elevate discussions on the impact of climate change on vector control. Under this cross-cutting theme, VCWG work streams will facilitate discussions to explore the relationship between climate and vector control, the potential effects of climate change on malaria vector control and burden, and strategies to enhance climate change adaptation and reduce vulnerabilities.

Theme 3: Gender and youth considerations in vector control programmes

One of the main inequality in the fight of vector-borne diseases (VBDs) is the limited involvement key workforces such women and youth. The VCWG crosscutting Gender, Youth and Vector Control theme will apply the Gender and Youth dimensions as a core element across the entire Working Group based on an inclusive engagement model to ensure in all the components of the community buy-in. The main objective of this theme is to leverage specifically on the ripple effect of women's and youth empowerment through their engagement from the inception, design, and implementation of vector control strategies.