

**RBM Partnership to End Malaria**  
**Vector Control Working Group (RBM VCWG)**  
**16<sup>th</sup> Annual Meeting, Session 1: 18<sup>th</sup> March 2021**  
Hosted Online via Zoom

Co-chairs: Justin McBeath & Keziah Malm  
Secretariat: Konstantina Boutsika  
Rapporteur: Erin Foley



## Code of Conduct

### RBM Partnership to End Malaria Vector Control Working Group

The RBM Partnership to End Malaria Vector Control Working Group is committed to providing a safe, productive, and welcoming environment for all working group members, meeting participants and VCWG staff, based on values of professional respect, courtesy, embracing diversity and recognition of the different constraints and operating environments, which we all operate in.

At meetings, all participants, including, but not limited to, attendees, speakers, volunteers, exhibitors, VCWG staff, service providers, and others are expected to abide by the VCWG Code of Conduct. This Code of Conduct applies to all VCWG meeting-related events in public, private or online facilities.

#### **Expected behaviour**

1. All participants, attendees, VCWG staff, and vendors are treated with respect and consideration, valuing a diversity of views and opinions.
2. Be considerate, respectful, and collaborative.
3. Communicate openly with respect for others, critiquing ideas rather than individuals or organisations. Do not use the VCWG Annual Meeting as a public forum to vent frustrations at individuals or organisations.
4. Avoid personal attacks directed toward other attendees, participants, VCWG staff, and suppliers/vendors.
5. Be mindful of your surroundings and of your fellow participants. Alert VCWG staff if you notice a dangerous situation or someone in distress.
6. Respect the rules and policies of the meeting venue, hotels, VCWG-contracted facility, or any other venue (in the case of an in-person meeting).

#### **Unacceptable behaviour**

Examples of unacceptable behaviour include, but are not limited to, verbal comments related to gender, sexual orientation, disability, physical appearance, body size, race, religion, national origin, inappropriate use of nudity and/or sexual images in public spaces or in presentations or online platforms, or threatening or stalking any attendee, speaker, volunteer, exhibitor, VCWG staff member, service provider, or other meeting guest.

The following behaviours are not tolerated at VCWG meetings and events:

1. Harassment, bullying, intimidation, or discrimination in any form.
2. Physical or verbal abuse of any attendee, speaker, volunteer, exhibitor, VCWG staff member, service provider, or other meeting guest.
3. Disruption of talks at oral or poster sessions, in the exhibit hall, or at other events organized by VCWG at the meeting venue, hotels, or other VCWG-contracted facilities by persons who are not chairing or facilitating the session (in the case of an in-person meeting).
4. Disruption of the virtual meeting (e.g. “zoom-booming”) or engagement in harm or threats of harm of any kind.
5. Recording of any session(s) without permission in any medium (audio, video) and their distribution via social media or any other means.
6. Distribution of pictures or copy research posters/presentation materials unless explicit permission is granted.

*RBM Partnership to End Malaria Vector Control Working Group, 10 February 2021*

## Day 1: Thursday 18<sup>th</sup> March 2021

### Session 1: Restructuring of VCWG work streams, call of interest and refreshed focus

Co-Chairs: Justin McBeath, Keziah Malm

This year, the RBM VCWG-16 meeting is going virtual, due to the current COVID-19-pandemic. We count 323 registrants (as of 23 March 2021). The participants are from 48 different countries, representing all WHO regions (AFRO, PAHO, SEARO, EURO, EMRO, WPRO).

#### **Welcome, introductions and meeting objectives – Justin McBeath, Bayer**

Justin McBeath opened the meeting, welcomed participants and thanked all for their attendance. He commented that the format of this year's event is unusual, and it has been an unusual year where we have all had to adapt and make changes. This is fitting for this session, whereby the theme relates to change, namely the changes which have been made over the last 12 months in restructuring the work streams. This first session is accompanied by an update from Dr Diallo on the RBM Partnership Strategic Plan for the next 5 years, as well as explanations of the rationale and make up of the new work streams, leading into the subsequent individual work stream sessions which will occur throughout April. The agenda of this session was iterated:

1. Welcome
2. Overview of RBM Partnership Strategic Plan
3. Overview of VCWG objectives and new structure
4. Work Stream 1: Enhancing Impact of Core Interventions
5. Work Stream 2: Expanding the Vector Control Toolbox
6. Work Stream 3: Implementing the Global Vector Control Response
7. Wrap up and close

#### **RBM Partnership Strategic Plan 2021-2025 - Dr Abdourahmane Diallo, RBM Partnership to End Malaria**

Since 2017, the RBM Partnership to End Malaria has been revitalised to face the challenges of a new era in global health. The RBM Partnership set out a three-part strategy in 2018 to keep malaria high on the political agenda, to promote regional approaches in the fight against malaria and to increase the financing envelope for malaria. The last year of the strategy started just before the onset of the pandemic, and that strategy enabled the community to respond to malaria effectively during one of the most challenging moments for global health. Due to this work, and the hard work of all involved, the malaria community has remained resilient in the face of the COVID-19 pandemic and has continued to build the necessary financial, political, and community support to sustain the fight against malaria.

At the beginning of the COVID-19 crisis, troubling signals were received. All LLIN campaigns appeared to be at risk to disruptions from the pandemic including implementation of global lockdowns. The global supply chain for vector control commodities, drugs and diagnostics were under threat. At global and country levels, we saw attentions were shifting entirely to address COVID. Modelling from the WHO suggested that in the worst-case scenario, we could see a doubling of malaria deaths, potentially reversing the progress that has been made over the last 20 years.

Due to the dedication of the malaria community, we were able to avoid the worst scenarios and keep malaria programmes on track. Campaigns were adapted to be COVID safe and widely rolled out. Major supply chain bottlenecks were successfully addressed, and a high-level advocacy helped ensure that the political will to address malaria was sustained overall. This support enabled the distribution of 170 million LLINs by the end of 2020, and more than 20 million children were protected through seasonal malaria chemoprevention (SMC).

Last year was a critical time for global fund applications. RBM/CRSPC provided support to 49 countries to complete their applications. This included international consultants, local meeting support for country dialogue and local consultants, country peer review through mock TRPs and expert review of proposals. \$3 billion for malaria programmes has been secured for the next three years. Over the last year, through consultations with stakeholders from all over the malaria community a new strategy has been developed to guide the partnership from 2021-2025 to build on achievements and to help the malaria community adequately face today's challenges.

The strategic objectives are:

1. To optimize the quality and effectiveness of country and regional programming
2. To maximize levels of financing
3. To facilitate the deployment and scale-up of new products, techniques or implementation strategies

These objectives are supported by four key strategic enablers:

1. Improving data sharing and use
2. Increasing the effectiveness of the partnership
3. Maintaining a focused secretariat
4. Targeted advocacy and communications

Dr Diallo turned focus to the new key areas in the strategy that will require support. The first of these is with regards to innovation. We need to ensure a clear path from innovation to access. It is also of great importance to identify the role of the partnership in supporting and promoting new interventions, programme design and delivery, and how best to facilitate knowledge change that will allow for the streamlining of deployment and scale-up of new interventions, techniques and implementation strategies.

The second area concerns data for decision making. RBM Partnership has launched the Global Malaria Dashboard, a tool to facilitate high-level decision making, to address country identified bottle necks including major commodity gaps, and the status of planned vector control campaigns.

The third area concerns strategic advocacy and resource mobilisation. There is still a major gap in terms of global resources in the fight against malaria and we need to maximise the levels of financing that is available.

Finally, partnership enhancement is needed. In addition to changes around key deliverables, an important element of the strategy will be to map partners and identify gaps in organisations with technical, financial and political expertise as well as resource mobilisation. This year will see a detailed implementation plan to support the 2021-2025 strategy. Support from the community is needed to achieve these goals.

Dr Diallo thanked participants for joining and listening, and opened the floor to questions.

### ***Discussion***

- It was asked if Dr Diallo could elaborate on how far we have gotten with the 2021-2025 strategy? The previous strategy expired on the 31<sup>st</sup> of December 2020. Much of the last year has been spent having consultations with various stakeholders of the malaria community to develop the new strategy, which was approved at the December 2<sup>nd</sup> board meeting (2020), and has now been officially launched. There are plans to develop a detailed implementation plan which will look at the strategic objectives and strategic enablers in order to determine the best way to deliver on the strategy, the best vehicle, instruments and overall tools of the partnership that can be brought together to implement the strategy, as well as building of key performance indicators and milestones. These will be evaluated mid-way (2.5 years) so that adjustments can be made based on the outcomes and the realities of the strategy.
- Keziah Malm commented that the work of RBM Partnership to support the community during this pandemic is very clear, and expressed relief that mass campaigns appear to be on track, and gratitude for the support received by the RBM Partnership. Dr Diallo responded by thanking and recognising the heroic effort of all involved in bringing the community together during these unprecedented times to convey a unique message that this is not either fighting COVID or fighting malaria, but instead is fighting the two together.
- It was asked if any shift from malaria is perceived i.e. political lag and flow on effects from COVID? Many countries have responded to the COVID-19 pandemic by reorienting resources (both human and financial) towards managing this emergency. Infrastructures are additionally reserved for this purpose and supply chains are disrupted by the procurement and distribution of commodities to manage COVID-19. Disruptions caused by the pandemic are seen at global and country levels. Discussions with country leaders and heads of state among others were held by the RBM Partnership in order to strongly advocate for the continuation of malaria services, leading to successes mentioned in this talk. We do not yet have the full picture of what has happened in 2020, and many questions arise with regards to case management. We must continue to move forward and adapt as we did in 2020 now in 2021, as the crisis is not over yet.
- It was asked if Dr Diallo could speak directly regarding how we can respond to the current crisis situations seen in Northern Mozambique and Tigray? The RBM partnership is focused on complex operating environments, including countries suffering from challenges such as natural disaster and security threats. RBM Partnership has no limiting factors, where there is need RBM Partnership is involved. In response to this question, Dr Daddi Wayessa commented that in general RBM/CRSPC provides technical assistance (TA) to countries with different emergencies based on their request, and also continue to hold check-in calls with NMCPs in order to respond to implementation bottlenecks in real-time.
- It was asked if there is any specific engagement or input the RBM Partnership would like from the vector control community, particularly in 2021 and 2022? The new strategic plan is an overall umbrella under which we will all operate and involves development of annual work plans. The process of developing these work plans is very thorough, many committees come together and propose activities to deliver within the year to the secretariat. Within all the partner communities, key activities are generated focusing on needs and priorities. These are aligned to ensure there is no overlap or duplication, and that strategies are united, complement one another and are synergistic to deliver critical missions. The best way to contribute is to work with the partner communities as the working groups do. For VCWG, the CRSPC leadership is directly involved and all inputs and suggestions are welcome through this partner community.

- It was asked in countries with lack of malaria and COVID diagnosis, can there be a chance that malaria has been underestimated? Yes definitely, this is logical and exactly why the strategic plan calls for a timely, detailed delivery of data. This is a fundamental and important process, and specifically why RBM and its partners have launched the Global Malaria Dashboard to create visibility of what is happening in countries and to identify challenges and bottlenecks.
- Dr Diallo commented that the Global Malaria Dashboard is now available on the RBM Partnership website. This became a very useful and important tool during the COVID-19 crisis. The CRSPC have kept track of some key indicators and cases during this crisis and moved these to the dashboard. The idea of the dashboard is to visualise any sudden upsurge of cases for any reason, to ensure supply chains are continuous (including tracking of the stock status of countries), to track and monitor the status of malaria control programmes, epidemiology and requests for technical assistance, and to elevate any challenges and issues that arise in order to find solutions. The scope of the dashboard is being expanded for more uses including addressing of financial gaps.

#### **Overview of VCWG objectives and new structure - Justin McBeath, Bayer**

Justin McBeath presented an overview of the VCWG objectives and new structure. Points of Dr Diallo's presentation were highlighted/reiterated in context of the role of VCWG and considerations in the restructuring process; the reference to data sharing and to innovation. We need a clear path from innovation to access and these points were at the forefront of the restructure.

This is the first restructure in five years, and the need for refreshing was highlighted as necessary from feedback of the last meeting.

The aim of the VCWG was iterated; to support the implementation of Vector Control Guidance generated by WHO and to harmonise and galvanise efforts towards malaria elimination targets. The VCWG meeting helps to achieve this aim through;

1. Dialogue around best-practice sharing
2. Information dissemination
3. Aligning constituencies on challenges faced in malaria vector control
4. Networking

Up until the end of 2020, VCWG had 6 work streams with priorities for LLINs, IRS and IRM, larval source management, new tools and new challenges, IVM, and VBDs and the built environment. When these workstreams were assessed it was noted where overlaps in activities and shared activities lie, which informed the translation of these 6 into 3 broader workstreams;

1. Enhancing the Impact of Core Interventions; LLINs and IRS
2. Expanding the Vector Control Toolbox; Larval source management, new tools and new challenges
3. Implementing the Global Vector Control Response; operation elements such as IVM and IRM

Whilst not an official work stream, VCWG has additionally been focused on ongoing work surrounding vector control in humanitarian emergencies. This is maintained as a focus group whereby VCWG provides a platform for initiative sharing and bridging activities to work streams. Work streams are to consider any specific needs recognised by this focus group.

Each of the three work streams aligns their workplans under three areas of focus output (providing the path from innovation to access);

1. Focus Output 1: Identify gaps, capacity needs and research priorities

2. Focus Output 2: Policy clarification and evaluation pathways
3. Focus Output 3: Operational scale up and support

These changes were implemented for a number of reasons including aligning common challenges between prior work streams, to focus on the bigger picture objectives, provide a greater opportunity for identifying synergies between related workplans, and opportunity through the new task force approach for broader engagement of the VCWG network.

Task forces are created to tackle workplan elements. They have been identified to work on specific workplan topics and members may be selected from volunteers of members of the VCWG network who are known to/have funding to work on specific topics. Principles for the selection of task force members are identified. These are currently limited in size for working efficiency, but the scope of these task forces will evolve over time and future opportunities for VCWG members to be involved will occur.

**Work Stream 1: Enhancing the Impact of Core Interventions – *Hannah Koenker, Tropical Health & Allan Were, PMI VectorLink Project***

Allan Were opened the session. The new work stream 'Enhancing the Impact of Core Interventions' is derived from the activities and priorities that were part of the previous LLIN and IRS/IVM priorities workstreams from the old structure. As aforementioned in the previous session, three focus output areas have been identified.

Under focus output 1, the activities of this work stream will involve the targeting and stratification of LLINs and IRS products. Under focus output 2, the workplan will focus on policy guidance around LLINs and IRS (particularly regarding where these interventions are used in combination) as well as evaluating the effectiveness of partial IRS, refining and standardising of the denominator of IRS, and finally refining quantification of LLINs. Under focus output 3, the work stream will focus on LLIN durability, access and replacement, LLIN use issues, capacity building and technical assistance to IRS programmes and expansion of mobile data collection for both IRS and LLIN programmes.

Hannah Koenker highlighted the key achievements of the previous work streams in terms of completed and ongoing activities. A number of activities have been undertaken on the monitoring of LLIN durability including publications and information on these activities is available at [www.durabilitymonitoring.org](http://www.durabilitymonitoring.org). ITN distribution has been a key area of focus particularly surrounding the stratification and selection of appropriate intervention mixes, High Burden to High Impact (HBHI) Initiative modelling and results sharing across countries through the work stream. Focus has also been on net replacement timelines and behaviours i.e. how households treat new nets and when they choose to retire them (this work is ongoing). In terms of new nets, the workstream have focused on the sharing of updates on research studies and modelling work, as well as methods for assessing the bio efficacy of nets and the validation thereof. A partial IRS study was conducted and presented at the previous VCWG meeting. As a result of this a protocol for a follow-on randomised controlled trial (RCT) is currently under development. Finally, the Vector Learning Xchange was a key aspect of the previous and indeed new work stream, whereby members share lessons learned, tools and best practices surrounding vector control.

In terms of transition from the old workplan to the new, there is a lot of synergy and continuity across each of these elements, keeping focus on targeting and stratification of LLIN and IRS products, information results sharing to aid policy and guidance on new nets, sharing of updates and progress, as well as operationalisation of policy guidance into practical recommendations. VCWG works in alignment with the Alliance for Malaria Prevention which focus on mass ITN campaigns. The VCWG

will remain focused on ITNs and LLINs in terms of policy and research related elements and elements related to vector control, whilst the AMP will focus on operational logistics of ITN and LLIN distribution through mass campaigns and continuous distribution.

In terms of the task forces that are being set up, work is being conducted to determine how best to integrate these into the activities of the work stream. A survey was released and many expressed an interest in becoming part of these task forces. The need for specific task forces will be explored in depth in the April 20<sup>th</sup> session.

An overview of the agenda for April 20<sup>th</sup> was given;

1. Series of short talks on the following topics: targeting interventions and decision-making, results from recent studies and ITN durability updates
2. Discussion of Focus Teams/Task Forces

### ***Discussion***

- It was asked if IVM will be considered as an intervention in addition to LLINs and IRS? IVM is not recognised as an intervention in its own right but rather an integration of interventions. The previous work stream of IVM evidence and capacity building is regarded as a key aspect of and considered and recognised in the third new work stream; Implementing the Global Vector Control Response.
- It was highlighted to attendees that in an effort to ensure the new work stream gets more people involved, a survey was disseminated regarding participating in task forces when the opportunity arises. This is to provide people with an opportunity to contribute more substantially to the work of the work streams, to support co-leads and broaden number of people with significant involvement.
- It was commented that AMP is focused on nuts and bolts of getting nets out through mass campaigns and continuous distribution and asked for clarification that new tools/best practices being developed for continuous can be disseminated through this workstream? Yes, best practices that are being developed for continuous distribution, particularly policy related guidance would be disseminated through this work stream. A common function of dissemination and cross-linkage is seen across the new work streams.
- It was asked what exactly is the role of the task force, how is the membership decided and who leads them? This may vary between work streams, but the role of the task force is to bring together people with a keen interest in a research area or work stream focus topic, to work on a particular issue for example creation of consensus statements, summarising of evidence for the wider workstream etc. Membership in the past has been ad-hoc for those with time and/or funding, but this process will aim to bring in people who perhaps have not been included in the past but have a lot of contributions to make. An initial survey was circulated to assess interest levels. The task forces will be discussed further in the last three dedicated sessions of the VCWG meeting.
- It was asked if there will be another round of recruitment for the task forces? Recruitment is not closed within this first work stream. It was suggested that those with an interest who have not been contacted for the survey are free to contact Hannah or Allan directly, ideally ahead of the April 20<sup>th</sup> session. Task forces have the scope to be expanded and nothing is yet set in stone with regards to these.
- It was asked if there is a possibility for quarterly webinars to address perceived gaps in communication and dissemination of information regarding the activities of the workstreams and broader information sharing among the VC community? It was acknowledged that this

has been a difficult and challenging year which has led to outreach plans not coming to fruition, but it is an integral focus of the work streams to meet the needs of the membership in terms of how much communication is useful, and quarterly webinars could be a way to do this. More discussions will be held on best strategies for communication in the April 20<sup>th</sup> session.

- It was asked if the link to enrol in task forces will be sent again prior to the April 20<sup>th</sup> session? This will be discussed with Konstantina but the interest is evident from the meeting so far and so this will be considered.
- It was reiterated that the task forces for this work stream have not yet been assembled.
- It was asked how the VCWG workstreams will coordinate with the AMP working groups? A meeting and/or presentation was suggested to discuss the linkages and the best process for achieving efficient coordination between groups.
- It was recommended that explicit links are made between the VCWG workstreams and the PAMCA and APMEN VCWG.

**Work Stream 2: Expanding the Vector Control Toolbox - Allison Tatarsky, University of California San Francisco, & Sheila Barasa, Clinton Health Access Initiative**

The former Larval Source Management (LSM) work stream and New Tools, New Challenges (NTNC) work stream have been condensed into work stream two: Expanding the Vector Control Toolbox. The commonalities of the two former work streams have been identified and brought together given similar gaps and opportunities.

The themes of this work stream are three-fold;

1. Larval Source Management
2. Innovations in vector control and surveillance
3. Anthropology and human centred design in the context of vector control

Under these themes, activities have been identified and oriented under the three focus outputs.

Achievements of previous 2019-2020 workplans were highlighted:

NTNC Project #1 – Identification of *Anopheles* vectors. The objective of this project was to resolve challenges on identification of malaria vectors in residual transmission settings. Key achievements of this project included the Irish, Coetzee *et al.* publication of an updated list of *Anopheles* species by country in the Afrotropical region and associated islands. Maureen Coetzee also published a new key to the females of Afrotropical *Anopheles* mosquitoes. Additionally, the development of protocols and guidelines to ensure the correct association of molecular identification with morphological identification of mosquito specimens is underway. The WHO GMP team provided an update last year that there is a revision to the 1975 practical entomology guideline currently in development.

NTNC Project #2 – Develop draft guidelines for measuring residual malaria transmission and its drivers. Monroe *et al.* published methods and indicators for measuring patterns of human exposure to malaria vectors. This allowed for a greater understanding of human and vector behaviour in residual transmission settings and to identify drivers of transmission.

LSM Project #3 – Review operational LSM in national malaria programmes and identify evidence of impact. Malaria programmes in Ghana, Niger, Rwanda and Uganda are incorporating LSM into their programmes, and in Botswana, Namibia and Swaziland an LSM operational research project has been launched with WHO-AFRO and ICIPE.

New themes that have been developed as a result of feedback from work stream members were highlighted. The first theme surrounds the well-received comments that the work stream not focus only on new tools, but additionally on how we can review, adapt and improve existing tools including LSM, space spraying/targeted swarm spraying and outdoor residual spraying, among others, particularly with regards to delivery, program implementation and evaluation. The second theme concerns emphasising human behaviour research in vector control research and the incorporation of human centred design in the development of new vector control tools. The third theme is understanding urban malaria and the invasive species *Anopheles stephensi*. Whilst *An. stephensi* surveillance is focused in work stream three, it is believed that work stream two may be an appropriate place for research results sharing, especially around control measures. There are ongoing discussions with VCWG on where this fits best. Innovations in housing will continue to be looked at under this work stream.

In terms of LSM, the focus areas of the previous work stream are continued. This includes reviewing technology that is being used for LSM including GIS, drones for mapping and satellite imagery and following up of studies that are using these activities to ensure that knowledge and results sharing is upheld. Under focus output 2, evidence is being gathered from new studies pertaining to environmental management (including habitat modification and manipulation). With regards to focus output 3, operational LSM in national malaria programmes is being reviewed and evidence of impact gathered.

This work stream will continue to focus on innovations in vector control and surveillance. As part of this, a live inventory of publicly available information on new vector control tools (such as repellents, ATSBs, genetic control etc.) will be maintained. A framework will be developed to actively track and share updates on new vector control paradigms and roadmaps. Vector Control Advisory Group (VCAG) will be engaged to share updates on the policy pipeline around new vector control products and paradigms. This work stream additionally aims to highlight innovation and opportunities to incorporate anthropological research and human centred design into the development, evaluation and scale up of new vector control tools and will also include community engagement in vector control.

With regards to selection of task force members, a list was received of those who were interested in activities within the themes of this work stream, and work will be done to generate task forces according to priority areas that emerge. This is still open to recruitment, and a preliminary list of task forces is expected to be available during the session on April 29<sup>th</sup>.

An overview of the agenda for April 29<sup>th</sup> was given;

1. Presentations and discussion on evidence for environment management including habitat modification and manipulation.
2. Presentations and discussion on roadmaps for vector control paradigms including bite prevention, attractive targeted sugar baits (ATSBs), endectocides and genetic control.
3. Presentations and discussion on integration of human centred approaches to enhance efficacy of vector control interventions.

### **Discussion**

- It was commented that as a general principal we can improve substantially in community engagement and participation in achieving malaria elimination objectives. It was asked if there is any attempt to improve community involvement based on Knowledges, Attitudes and Practices (KAP) survey analysis? There will be an interesting presentation on community

engagement in the upcoming sessions. This is a topic which straddles work stream two and work stream three and is a key topic for VCWG and deserves a high level of attention and a critical priority. Utilising KAP surveys as a tool for community engagement in the work stream is not currently explicit but presentations on this would be welcomed as it fits well into the new theme of human behaviour considerations in vector control.

- It was asked if there is a timeframe for the work of matching molecular markers with morphology? There is not a timeline yet but researchers have been engaged and a draft is currently in development, this will be shared when completed. It was commented by Seth Irish (US CDC/PMI) that very basic guidance for association of molecular and morphological identifications has been developed, but it still requires some work to be developed into proper guidance document or an SOP. Neil Lobo (University of Notre Dame) and Seth Irish (US CDC/PMI) have been discussing this, but would be happy to work with anyone who has more availability to work on writing up the document.
- Several questions and comments were made regarding *Anopheles stephensi*, particularly in the Horn of Africa and its potential spread. This is of a high priority, and presentations on this topic will be held in subsequent sessions for workstream three. The VCWG will be having a dedicated webinar with regards to *An. stephensi* in the coming months.
- It was commented that many countries have big issues with entomological monitoring and surveillance due to lack of human resources, structures and financial issues. It was asked how it would be possible to prevent invasive species before it gets serious? Ultimately in order to prevent invasive species it does come down to the strength and capacity of entomological surveillance which is lacking in many countries. Surveillance issues will be addressed in the upcoming *An. stephensi* webinar and work stream three has a focus on boosting entomological surveillance, methods and innovations surrounding this.
- An important resource was shared, the WHO Threats Map, which NMCPs and vector control community may find useful particularly "Invasive Vector Species".  
<https://www.who.int/malaria/maps/threats-about/en/>.
- It was commented that Insecticide Resistance Management (work stream three) and "targeting/stratification of LLIN/IRS" (work stream one) are almost the same thing. As GPIRM acknowledged, Resistance Management is operationalised mainly in the careful choice of insecticidal products, according to local resistance. Conversely, when you are targeting and stratifying for allocation of LLIN/IRS products, resistance management is the number one criterion for this kind of targeting. It is almost impossible to avoid overlap between work streams and should be noted that information sharing is a vital part of VCWG, and all work streams are intertwined.
- It was asked if there has been any discussion of or partners already working to draw on the experiences in reproductive health for example and bring in the extensive learning across sexual and reproductive health (SRH), HIV, etc. in the context of human centred design? This is a great example of how we see work streams and task force members contributing with their own specific areas of interest and knowledge. Inputs are welcomed from all, but this has not been addressed thus far.

### **Work Stream 3: Implementing the Global Vector Control Response – Mark Hoppé, Syngenta & Chadwick Sikaala, Elimination 8**

The previous work streams concerning IVM evidence and capacity building, IRM and VBDs and the built environment have been condensed into work stream three. The main themes of work stream three are integrating tools and responses of IVM, IRM, entomological capacity building across all regions and strengthening of inter-sectoral linkages.

Under focus output 1, there are three areas of focus for work stream three. Firstly, mapping entomological training needs, opportunities and capacity to highlight gaps and opportunities for collaboration with research institutions and centres of excellence. Secondly, mapping operational IVM strategies and how these fit into the Global Vector Control Response (GVCR) strategy, identifying opportunities for share of best practices. Finally, to map the intra and inter sectoral links/interfaces and gaps, identifying key stakeholders and partners and increasing opportunities for greater and broader collaboration and strengthening the platform and challenges faced.

Under focus output 2, four areas have been identified under work stream three. Firstly, to support the evaluation of the linkages between entomological surveillance data and epidemiological outcomes. Many platforms have been developed for this purpose. Secondly, to maintain the consensus statement on housing and vector control. Thirdly, to share updates from BOVA and Multi Sectoral Working Group (MSWG) and finally, to support the Vector Learning Xchange platform.

Under focus output 3, work stream three is focused on the promotion and scale up of vector control tools and approaches in the framework of IVM, supporting the capacity to monitor and manage insecticide resistance, share best practices in entomological surveillance (particularly around vector control intervention efficacy), to strengthen linkages with housing and agricultural sectors and finally, to deliver the IRM Massive On-line Open Course (MOOC).

Key achievements and elements of the previous workplan were highlighted. Project 1: to develop, produce and deliver an online IRM training course using the MOOC approach. This is in late stage production and due to be complete during Q2 2021. Project 2: to support the objectives of the Vector Learning Xchange. This is maintained as a focus for the new workstream under focus output 2. Project 3: community-based piloting of partial IRS. An update on this is scheduled (this is an ongoing activity).

Task teams will be a collection of individuals who are motivated to address a particular topic with a specific output and time frame. These should address the topics covered by the themes and focus output areas of the work streams. They will be undertaken relatively autonomously, but supported by the wider work stream membership and co-leads. An activity of the work stream meeting on April 22<sup>nd</sup> will be to identify the first topics. The task teams will then be formed around those, where the volunteering work stream membership have both the expertise and energy. *Anopheles stephensi* and IVM will be key focuses with regards to this work stream. Those who have volunteered already and put their names forward were thanked, and it was noted that recruitment for this has not been closed.

An overview of the agenda for the session on April 22<sup>nd</sup> was outlined. Presentations will be given, including on the following themes:

- Global Vector Control Response
- Entomological surveillance – best practice and available toolkits
- Importance and examples of multiple approaches to vector control and IVM, including examples of new initiatives
- *Anopheles stephensi* – an emerging threat
- Capacity developments and needs

Task teams and identification of first activities to address will also be covered including where the energy of the work stream members lies, what the key topics are to be addressed as well as expected outputs.

### **Discussion**

- It was commented that we need to look at a lot of these activities across different work streams where there is overlap. Work stream three would like to try and integrate these activities, and how focus these activities can be best integrated for an overall response as opposed to looking at them on an individual basis.
- It was asked that as well as talking about data from entomological surveillance, what about molecular surveillance? For example, data on investigating molecular drivers of metabolic resistance in malaria vectors? The approach of entomological surveillance comes in different layers which encompasses molecular surveillance. Groups are working on the linkages between these, and work stream three is focused on finding areas of energy where value is perceived.
- It was commented that in the WHO Malaria Threats Map and Vector Resistance theme, there are maps showing insecticide resistance status, pyrethroid-PBO nets deployment, insecticide resistance intensity, resistance mechanisms detection and metabolic mechanisms involvement.
- It was asked if more information can be given regarding partial spray activities? The old IRS/IRM work stream has been split between work stream one and work stream three and those activities will therefore be reported further through work stream one.
- It was asked where the IRM MOOC will be hosted and if it is open to everyone? The IRM MOOC will be hosted on FutureLearn, free to take part in and open to anyone and everyone. Once the date of completion and upload to the platform is confirmed, this will be widely promoted and links and details shared.
- It was asked if a bit more can be said about the impact of targeted IRS in Cuando-Cubango, Cunene and Namibia to highlight the work of the Elimination Eight Initiative (E8) to move towards elimination for that region. IRS in Cuando-Cubango (Southern Angola) has been targeted in districts which have been identified as sources of infection that are also affecting malaria across the border in Namibia. Namibia is nearing elimination, but cases from Angola are threatening this, hence targeting these areas. E8 and the Bill and Melinda Gates Foundation have been supporting these areas. Full coverage is required. Once these areas have been impacted, there are assumptions that Namibia and Angola will benefit by reducing malaria significantly and moving towards elimination goals.
- A lot of discussion was undertaken in the chat with regards to challenges and the complex nature of these. It was commented that the IRM MOOC will aim to address some of these issues at length. It is a very complex situation and we need to think of IRM not as an activity on its own, but rather an integral part of our efforts to control vectors of all VBDs. This raises many other questions and dilemmas regarding the most effective products to use in terms of resistance management. We must look at this in an integrated approach in order to move forwards. This work stream will focus on deciding where we draw the boundaries on the system that is vector control.

### **Wrap up and close – Keziah Malm, NMCP Ghana, Justin McBeath, Bayer & Konstantina Boutsika, Swiss TPH**

Keziah thanked all speakers and acknowledged the Swiss TPH as hosts of this session, as well as financial support which was provided by the Swiss Agency for Development and Cooperation (GlobMal Project).

Konstantina thanked all attendees for attending this session. Session 2 (15<sup>th</sup> April) will concern updates from the vector control community, and Sessions 3-5 (20<sup>th</sup>, 22<sup>nd</sup> and 29<sup>th</sup> of April respectively) will be

individual work stream meetings (1, 3 and 2 respectively). All information will be uploaded to the website and Attendee Hub.

Keziah reiterated that this productive first session began with an update from Dr Diallo on the RBM Partnership Strategic Plan, showing the importance of the partnership in helping countries to stay afloat in this pandemic. The pandemic has brought about change, including how this meeting is held. Despite initial delays and drawbacks, we hope all the efforts with partners allow us to remain on course to achieve targets. The new strategic plan highlights new objectives including optimising the quality and effectiveness of country and regional programming as well as levels of finance. VCWG are all supporting this strategic plan at all levels, and it is hoped that when this is evaluated we will have shown that most of these objectives have been achieved. The restructuring was outlined by Justin McBeath, which aims to make efforts in vector control more succinct and that there is more involvement of members, as well as to give us room to cross fertilise ideas across all work streams. Almost all questions were able to be answered and comments were well received, particularly those concerning the *An. stephensi* crisis. It was iterated that task force recruitment is still open and attendees should feel free to contact Konstantina and workstream co-leads to express interest.

Keziah thanked all attendees, work stream leads and interpreters and looks forward to the next sessions of this meeting. Justin added his thanks to all.

**List of acronyms**

AFRO	Regional Office for Africa
AMP	Alliance for Malaria Prevention
APMEN	Asia Pacific Malaria Elimination Network
ATSBs	Attractive Targeted Sugar Baits
BOVA	Building Out Vector-borne disease in Africa
CRSPC	Country/Regional Support Partner Committee
GIS	Geographic Information System
GMP	Global Malaria Programme
GPIRM	Global Plan for Insecticide Resistance Management
GVCR	Global Vector Control Response
HBHI	High Burden to High Impact
ICIPE	International Centre of Insect Physiology and Ecology
IRM	Insecticide resistance management
IRS	Indoor residual spraying
ITN	Insecticide-treated net
IVM	Integrated vector management
KAP	Knowledges, Attitudes and Practices
LLIN	Long-lasting insecticidal net
LSM	Larval source management
MOOC	Massive On-line Open Course
MSWG	Multi Sectoral Working Group
NMCP	National Malaria Control Programme
NTNC	New Tools New Challenges
PAMCA	Pan African Mosquito Control Association
PBO	Piperonyl butoxide
PMI	President's Malaria Initiative
RBM	Roll Back Malaria
RCT	Randomised Controlled Trial
SMC	Seasonal Malaria Chemoprevention
SOP	Standard Operating Protocol
SRH	sexual and reproductive health
TA	Technical Assistance
VBD	Vector borne disease
VC	Vector Control
VCAG	Vector Control Advisory Group
VCWG	Vector Control Working Group
WHO	World Health Organization

**Disclaimer**

The views and opinions expressed in the Chat are those of the individual presenter and do not necessarily reflect the official policy or position of the Vector Control Working Group of the RBM Partnership to End Malaria or any of its co-chairs, co-leads, coordinator.

**Chat from VCWG session 1****Restructuring of VCWG work streams, call of interest and refreshed focus****18 March 2021, 3:00 PM – 6:00 PM CET**

15:00:36 Von Sherwin Charles an Alle : Hello everyone

15:00:57 Von Catia Marques VL Angola an Alle : Good afternoon everyone from Angola

:46 Von Manuel Lluberas an Alle : Greetings from Puerto Rico.

15:05:14 Von Rose Peter an Alle : Hello there all

15:05:48 Von Sangeetha Rengasamy an Alle : Hi everyone, Greetings from WHO-GSC Malaysia

15:06:07 Von Mohan Rao Arasada an Alle : Greetings to all from Hyderabad, India

15:06:15 Von Dr. Anthony Nuwa an Alle : Hi Everyone, Anthony Nuwa Malaria Consortium Uganda. Greetings

15:07:49 Von Graham White an Alle : Salutations to antimalaria friends & colleagues old & new everywhere

15:08:03 Von Ranjith De Alwis an Alle : Hi All, greetings from Ranjith de Alwis - Sri Lanka

15:19:15 Von Michael Macdonald an Alle : can Dr. Diallo speak directly how we can help respond to the current crisis situations like in Mozambique and Tigray?

15:19:22 Von Konstantina Boutsika an Alle : Welcome to session 1! Please type your questions on the chat box.

15:21:05 Von Sian Clarke an Alle : The new plan covers 5 years, but are there specific engagements/inputs would you like from vector control community in 2021 and 2022 in particular

15:21:24 Von Catia Marques VL Angola an Alle : In countries will lack of malaria and covid diagnosis , can be a chance that malaria is being underestimate?

15:21:44 Von Catia Marques VL Angola an Alle : With not will, sorry

15:22:25 Von Ibenavente an Alle : A growing number of countries report to WMR confirmed countries only. What can we do to make routine stats more useful to see trends in % tested?

15:24:16 Von Ibenavente an Alle : confirmed cases only

15:28:40 Von Catia Marques VL Angola an Alle : Thanks, Dr Diallo

15:31:28 Von RBM - Daddi Wayessa an Alle : @Michael In general RBM/CRSPC provides TA to countries with different emergencies based on their request. We also continue to hold check-in calls with NMCPs in to respond to implementation bottlenecks in real-time.

15:32:52 Von Catia Marques VL Angola an Alle : @Michael , sorry for the question: Is Angola on dashboard of RBM and having support from RBM, please? Thanks

15:35:47 Von RBM - Daddi Wayessa an Alle : @Catia, Yes Angola is on the RBM Global Dashboard, specifically for TA for 2021

15:37:33 Von Catia Marques VL Angola an Alle : Thanks, @Daddi that's great to know. Will have a look as I am working with Malaria entomology.

15:43:37 Von Manuel Lluberas an Alle : Will IVM be considered as an intervention in addition to LLINs and IRS?

15:47:10 Von Konstantina Boutsika an Alle : Just a reminder: if you would like to hear the French live streaming, please choose French on the Interpretation button :-)

15:51:08 Von Konstantina Boutsika an Alle : Please send your questions via the chat box!

15:53:06 Von Dr. Anthony Nuwa an Alle : I thought IVM covers IRS, LLINS, LSM etc?

15:54:24 Von Dr. Anthony Nuwa an Alle : Thanks

15:54:35 Von JMiller an Alle : Hannah mentioned AMP is focused on nuts and bolts of getting nets out through MC and CD but can you clarify that new tools/best practices being developed for CD can be disseminated through EICI? Thank you

15:55:18 Von Lina Heltsche an Alle : What exactly is the role of the task force, how is the membership decided and who leads them?

15:55:35 Von Mohan Rao Arasada an Alle : IVM may basically include all types of interventions.

15:55:38 Von JMiller an Alle : Thanks Hannah!

15:55:49 Von Mojca Kristan an Alle : Will there be another round of "recruitment" for task force?

15:58:12 Von Mojca Kristan an Alle : Thanks.

15:59:40 Von Dr. Anthony Nuwa an Alle : I would love join workstream/task force which is still open. Thanks

16:00:13 Von Leo Braack an Alle : Not limited to any one Workstream, and I may be speaking in ignorance, but I get a sense there is not enough communication or dissemination of Workstream activities during the year, or a platform for broader Vector Community inputs and information sharing...any possibility of quarterly webinars?

16:00:51 Von Jackline Martine an Alle : I was wondering if the link to enroll task force will be shared again before 20th of April

16:01:20 Von JMiller an Alle : To that point I am interested to know how the VCWG Workstreams will coordinate with the AMP working groups

16:01:24 Von Anne Wilson an Alle : Agree, hadn't realised the taskforces had been assembled. Sure there are many people who'd be willing to help out with tasks.

16:02:06 Von Dr. Anthony Nuwa an Alle : Kindly allow me to drop off for another meeting. Thanks for great presentations and discussions.\

16:02:20 Von Michael Macdonald an Alle : and seeing that both Leo and Charles are here, to make sure there are explicit links to PAMCA and APMEN VCWG

16:02:32 Von keziah malm an Alle : Thank you Dr Anthony

16:02:58 Von Justin McBeath an Alle : Definitely - well recognised Michael.

16:03:02 Von JMiller an Alle : Great plan- thanks!

16:12:30 Von Leo Braack an Alle : Happy to see the reference to "Anthropology" Allison, as a general principal we can improve substantially in community engagement and participation in achieving malaria elimination objectives

16:15:27 Von Prof. Isaac an Alle : thanks for the information and links to the guidelines on species identification. I hope that the missing gap of matching molecular markers with morphology etc comes out soon. Is there any time frame?

16:16:45 Von Michael Macdonald an Alle : regarding LSM can we have a particular focus on invasive *An. stephensi* in the Horn of Africa?

16:18:04 Von John Invest - Sumitomo - UK an Alle : Agree with you Mike, *An. stephensi* biggest new threat in Africa

16:18:06 Von Mohan Rao Arasada an Alle : Is there any attempt of community involvement with KAP analysis to get motivation choices?

16:18:14 Von John Chimumbwa an Alle : Hi Allison, great presentation. For Southern Africa, the matter of *An. stephensi* is flowing down the Eastern Africa coast, threatening arrival in Mozambique is a scary prospect for a region that is trying to eliminate malaria. Does the working have some sort of voice to raise an alarm or add its voice to the Southern African voice to get the vector specialists world to pay attention to this threat..?

16:21:06 Von Konstantina Boutsika an Alle : Please send your questions via the chat box!

16:22:02 Von Catia Marques VL Angola an Alle : Most of Southern countries have big issues with entomological monitoring and surveillance due to lack of human resources, structures and financial issues. How do you think that would be possible to notice and prevent spreading before get serious?

16:22:05 Von Catia Marques VL Angola an Alle : Thanks

16:22:47 Von Prof. Isaac an Alle : thanks

16:22:58 Von Jeffrey Hii an Alle : I wonder if NMCPs and vector community find the WHO Threats Map useful particularly "Invasive Vector Species" <https://www.who.int/malaria/maps/threats-about/en/>

16:23:19 Von jo lines an Alle : Insecticide Resistance Management (WS3) and "targeting/stratification of LLIN/IRS" (WS1) are almost the same thing. As GPIRM acknowledged, Resistance Management is operationalised mainly in the careful choice of insecticidal products, according to local resistance. Conversely, when you are targeting and stratifying for allocation of LLIN/IRS products, resistance management is the number one criterion for this kind of targeting. Can we acknowledge this please?

16:25:45 Von Seth Irish an Alle : We only have some very basic guidance for association of molecular and morphological identifications...it still requires some work to be developed into proper guidance document or an SOP. Neil and I have been discussing this, but would be happy to work with anyone who has more availability to work on writing up the document.

16:27:55 Von Catia Marques VL Angola an Alle : Thanks , Allison.

16:28:40 Von Mary Kante an Alle : Great presentation, thanks Allison and Sheila. For Human centered design - have there been discussion of or partners already working to draw on the experiences in reproductive health for example and bring in the extensive learning across SRH, HIV, etc?

16:31:11 Von jo lines an Alle : Yes agree, just want a nod.

16:32:14 Von Prof. Isaac an Alle : thanks

16:34:21 Von Mary Kante an Alle : Thanks Allison, love being put on the spot. Will loop back via email. :-)

16:34:43 Von Allison Tatarsky an Alle : Thanks everyone for the great inputs!

16:34:58 Von April Monroe an Alle : @ Mary, great point. Sharing some HCD case studies that my colleagues at CCP worked on, including some malaria examples.

<https://breakthroughactionandresearch.org/sbc-flow-chart/>

16:36:18 Von Allison Tatarsky an Alle : thanks @April!

16:36:41 Von Mary Kante an Alle : Great to see this, look forward to reading, thanks @April

16:37:01 Von Sheila Barasa an Alle : Thanks April

16:37:17 Von Sheila Barasa an Alle : Thanks all for your input

16:38:24 Von Jessica Rockwood an Alle : Michael Macdonald and Thomas Putzer Human-Centered Design and Sustainable Malaria Interventions <https://www.ghspjournal.org/content/7/2/148>

16:40:06 Von Mary Kante an Alle : Thanks Jess!

16:40:19 Von Sheila Barasa an Alle : Thanks Jessica

16:43:50 Von Amelie an Alle : @Mark Hoppe. Talking about data from entomological surveillance, what about molecular surveillance? For example data on investigating molecular drivers of metabolic resistance in malaria vectors? Thanks for your response.

16:44:48 Von Amelie an Alle : Sorry @Chadwick Silaala. Could you please respond?

16:45:22 Von Amelie an Alle : Sikaala\* sorry!

16:46:33 Von Jeffrey Hii an Alle : In the WHO Malaria Threats Map and Vector Resistance theme, there are maps showing Insecticide resistance status

Pyrethroid-PBO nets deployment

Insecticide resistance intensity

Resistance mechanisms detection

Metabolic mechanisms involvement

16:49:45 Von ChabiJ an Alle : @Chadwick, can you highlight a bit on the partial spray activities?

16:51:40 Von Konstantina Boutsika an Alle : Please send your questions via the chat box!

16:51:42 Von Catia Marques VL Angola an Alle : @Chadwick , can you speak a bit more about the impact of partial spray, IRS in Cuando-Cubango, Cunene and Namibia, please?

16:51:45 Von Catia Marques VL Angola an Alle : Thanks

16:52:54 Von Erin Foley an Alle : Where will the IRM MOOC be hosted, and is it open to anyone?

16:57:03 Von Frederik Seelig an Alle : Happy to assist in promoting the MOOC via the Global Vector Hub.

16:57:11 Von Amelie an Alle : Thank you @Chadwick for your response. I'd like to volunteer in this task force as I have a keen interest in integrating molecular surveillance in NMCPs as a monitoring tool. This is also the core of my ongoing PhD research project. I will be pleased to be part of this taskforce. Thank you.

16:57:14 Von jo lines an Alle : Yes, Jeff, and that complexity is only part of the story. For example, of the various Cytochrome oxidase mechanisms (which are the strongest and most common mechanisms) some do and some not cover cross-resistance to pyriproxyfen.... Which is the key added ingredient for some NewGen LLINs. This why the decision "which product will give best VFM in this particular province" must depend largely on resistance.

16:58:11 Von Erin Foley an Alle : Thank you Mark, that is fantastic. Please let me know if ARCTEC can help out with promotion of this MOOC.

16:59:12 Von Jose an Alle : what type of IRS should be used in areas of mosquito displaying resistance to pyrethroids

17:00:23 Von Catia Marques VL Angola an Alle : Thanks very much Chadwick

17:03:32 Von John Invest - Sumitomo - UK an Alle : To Jose, if you have pyrethroid resistance then you can use an a.i. that is non resisted such as an OP or clothianidin.

17:04:08 Von jacobwilliams an Alle : yes, Konstantina lets hear your voice! :)

17:04:08 Von jo lines an Alle : Well said Kezia!

17:04:09 Von Mohan Rao Arasada an Alle : Thanks to all.

17:04:32 Von Gagik Karapetyan an Alle : Thanks for a great session!

17:05:02 Von Charles Mbogo an Alle : Great sessions -- thanks

17:05:31 Von Wolfram Wagner an Alle : Thanks to all.

17:05:31 Von jacobwilliams an Alle : Excellent first day. Thanks to everyone in the leadership for a great job!!

17:05:44 Von Erin Foley an Alle : Thank you to everyone for a excellent first session! Well done all

17:06:05 Von bemidi an Alle : Excellent sessions.

17:06:25 Von Dr David Zinyengere an Alle : Great session thanks to to the organisers

17:06:36 Von Catia Marques VL Angola an Alle : Thanks a lot for a very interesting session and would be keen to support task involving entomological surveillance

17:07:05 Von Rose Peter an Alle : Thanks for an informative session

17:08:46 Von Naomi Serbantez an Alle : Thank you all

17:09:04 Von Karen Larson an Alle : Thank you everyone

17:09:09 Von Ibenavente an Alle : bye all