

Optional Workshop between the Vector Control & Multi-Sectoral Working Groups

Wednesday 8 February 2023, 14:00-17:30
Movenpick Ambassador Hotel, Accra, Ghana

AGENDA

Objective

Explore the most effective means to localise multi-sectoral
deployment of vector control

Co-Chairs: Corine Ngufor & Justin McBeath (VCWG),

Graham Alabaster & Peter Mbabazi (MSWG)

Coordinator: Konstantina Boutsika

Rapporteur: Jessica Dennehy

Welcome and introduction to the Workshop - Corine Ngufor & Justin McBeath (VCWG), Graham Alabaster & Peter Mbabazi (MSWG)

Justin McBeath (JM) introduced participants and outlined the important link between the Vector Control Working Group (VCWG) and Multi-Sectoral Working Group (MSWG) meetings. Various topics of vector control lend themselves to multisectoral engagement. Graham Alabaster (GA), introduced the MSWG and the hope for the progression of the group moving forward. The structure of MSWG this year will be to focus on the two flagship projects. Future meetings will always plan for both VCWG and MSWG to meet back-to-back of each other to promote sharing of best practices and multisectoral engagement.

Talking about Kampala, His Worship Mayor Erias Lukwago (Mayor of Kampala, Uganda)

Peter Mbabazi (PM) presented on behalf of the Mayor of Kampala who was unable to attend the session. PM described the current situation in Kampala – malaria prevalence has decreased from 17% in 2014 to a national average of 9% now. In Kampala itself, the prevalence is only 1%. Population based surveillance, conducted overtime, has identified certain challenges to malaria control. These challenges include population migration, with spikes in malaria seen during specific times of year such as Christmas. Other challenges increasing exposure risk include the brick making industry, night workers, armed forces, market workers and school students. Other issues being explored in Kampala include insufficient infrastructure, including roads and drainage systems, specifically in the urban slums. The appropriate malaria control interventions must be considered for these communities.

Shaping the built environment for vector-borne disease control, Lucy Tusting (LSHTM)

This presentation gives an overview of how the built environment affects vector-borne diseases (VBDs), opportunities for deployment of multisectoral interventions, reflection of associated challenges and research in the pipeline. Many elements of housing can impact VBDs, specifically man-made water bodies promoting breeding of urban mosquitoes (*Aedes / An. stephensi*), waste promoting breeding of sandflies and waste water / polluted water promoting breeding of *Culex*. Housing is fundamental to human wellbeing and improvements to housing have been shown to reduce child mortality due to malaria, malnutrition etc. There are opportunities for deployment of multisectoral interventions, with two key actors to consider:

1. Transformation is occurring in sub-Saharan Africa and Asia. Globally the world is undergoing rapid urbanisation and population growth which is driving an increased demand for new housing, coupled with economic growth enabling households to invest more in their home. This provides an opportunity to help shape how houses are being constructed to improve health.
2. Increasing mandate from the World Health Organisation (WHO) and UNHabitat on the roles of the built environment on VBD control. The agenda published by UNHabitat in 2016 recognises the

important role cities play in VBD control. Additionally, in 2021, the WHO published its first edition for housing screening in malaria control and last year a new document was jointly published by the WHO / UNHabitat: The global framework for the response to urban malaria- guidance for city leader health programmes.

Key challenges include knowledge gaps (identifying the ideal housing design and mitigating against potential risks of changing housing) and implementing these interventions across sectors. Building Out Vector-Borne Disease in sub-Saharan Africa (BOVA) was an initiative which aimed to bridge the gap between health and housing sectors to improve VBD control. The main conclusions of this project were that housing clearly is an intervention that can be integrated into the health sector, however work needs to be conducted across the urban planning and housing sector, particularly in regards to funding and scale up.

There are three research projects in the pipeline – two Randomised Control Trials (RCTs) in Uganda and Tanzania studying the effect of housing on malaria and an additional study in Tanzania looking at the development of a tool for remote detection of high risk areas in the built environment.

Critical elements of WASH infrastructure and their contribution to managing vector-borne diseases, Graham Alabaster (UNHabitat)

The world is undergoing urbanisation at a rapid rate, and by 2015 70% of the world will live in an urbanised context. This means there is a strong need to better understand urban systems and creates an opportunity to implement urbanisation processes that will contribute to building out VBDs. Both *Aedes* and *An. stephensi* are of growing concern in the urban environment, alongside the potential of future zoonotic emerging diseases which calls for an integrated One Health approach. UNHabitat has immediate and the long term aims, trying to control some of these diseases early on by modifying the environment and using the resources we have to do that as well as ultimately re-designing and re-thinking our structures to be resilient against future disease threats. Cities are the leaders in multisectoral approaches and local authorities need more support in delivery effective health systems. Environmental control is not the only solution as must be used in conjunction with the tools and innovations discussed at the VCWG. Community engagement is a key factor to the success of multisectoral approaches.

Two case studies on integrated Water, Sanitation and Housing (WASH) projects and their direct / indirect impact on VBD control were presented. Firstly, community-led planning in Kibera (Nairobi), which has no formal road network, directly hindering economic development of the area. Most lack access to clean water and sanitation facilities and kiosks and stand pipes are the major sources of water. In high density urban areas the need to address sanitation, drainage and solid waste management becomes critical to health. This led to the initiation of the Kibera Integrated Water and Sanitation Project, which supported the development of 7 sanitation facilities to residents of Soweto East (showers and toilets). Additionally, in response to community requests, a 1.5 km tarmac ring road across Soweto East was constructed, facilitating the construction of 600 m of improved drains. The youth-organized door to door garbage collection for 400 homesteads and waste recycling has now become a source of income with the youth recycling waste-paper for resale.

Secondly, in Bangladesh, migratory populations resulted in rapid formation of a new city in an area with high groundwater levels. This resulted in high exposure and risk to VBDs due to large amounts of standing water promoting mosquito breeding. In this project, it was crucial to understand the landscape and community structure to deliver the critical infrastructure needed. Champions are needed at the city level to implement this multisectoral initiative.

Rice and malaria in Africa: exploring agriculture-health co-benefits, Jo Lines (LSHTM)

Rice areas bring more malaria, and, in the future, they will become a problem in elimination settings. This is a key element of the multisectoral agenda for two reasons: health interventions must be led by non-health sectors and the increasing problem of man-made malaria (the proportion of local mosquito populations from

breeding sites directly made from human activity). There is a strong need to steer both these activities to build an Africa free malaria.

The paddies paradox (rice fields generate a large amount of malaria vectors, but the amount of malaria in rice communities remains unaltered or is decreased) has been re-examined due to the wrong counterfactual (mosquitoes were never harmless – the paradox depends on inequity), changing intervention coverage and the aim to achieve malaria elimination in Africa.

It is possible to grow rice without growing more mosquitoes, without increasing inputs and without reducing rice yield. There is a need to develop these interventions in collaboration with the agricultural industry and rice experts must adopt mosquito breeding as an agricultural problem (as was done in response to methane production and climate change). In order to promote this collaboration, we must convince agronomists this is an avoidable problem by strengthening the evidence that rice brings malaria (more before / after studies, calculating the proportion of the global malaria burden attributable to rice farming, improving geospatial data collection) and showing that it is possible to grow rice without growing mosquitoes (methodologies for survey sampling, co-cultivation with fish, application of Bti etc.). These activities must involve discussions with international development partners above the ministry level.

Introduction to break out session & transition into the break-out groups, Corine Ngufor (VCWG), Peter Mbabazi (MSWG)

Break-out groups

Which vector control tools lend themselves well to multi-sectoral engagement /deployment?

In order to understand this question we would like break-out groups to explore these topics:

- 1. What are the limitations/opportunities for deploying those?**
- 2. Are there any successful examples of this happening?**
- 3. What different perspectives are needed when thinking about rural/ urban or periurban settings?**

Break-out groups present their findings (5 minutes/per group) - Rapporteur of break-out groups

The first grouped focused on three interventions: environmental management (including water and sanitation), active mosquito suppression (activities such as larviciding, space spraying, IRS conducted by the government) and screening in housing (financing, construction guidelines etc.). It was felt that these interventions are easier to implement in urban settings rather than peri-urban / rural and multisectoral involvement and reliance on local government structure is a common thread for the successful implementation of all interventions.

For environmental management, the sectors identified to be involved include environmental health officers, agriculture, natural resources and planning and housing development. Mosquito management requires the involvement of environmental health and ministries of health. Housing screening is the most challenging as some areas may fall beyond city jurisdiction, which may result in reluctance to work across sectors. To facilitate housing screen interventions, it is essential to involve community based organisations, NGOs, private sector involved in housing / construction, ministry of finance and microfinance organisations to support home financing.

Limitations of these interventions include coordination of and communication between multisector stakeholders and funding allocations across sectors, specifically defining responsibilities. There are also limitations within local government capacity, which need specific skills, expertise, management and knowledge to deliver these interventions. The decentralization of the government may impact the skills, expertise etc. available at the higher levels. Examples of successes include conducting larviciding as a

government programme, malaria engineers based within government units and centralized services and staffing

The second group explored the discussion topics in relation to larval source management (LSM), housing modifications and improvement and education. There is opportunity to reduce mosquito breeding sites through promoting LSM at the community level and raising awareness of the impact of man-made breeding sites. Challenges with this include ensuring people take responsibility / accountability, jurisdiction of habitats and the collection of the right types of data to be of use to varying stakeholders. LSM must be tailored to the local environment and requires a high level of community awareness. Implementation within urban environments may be more complex due to lower community risk perception, particularly for malaria.

The main challenges associated with improving housing infrastructure as a control intervention is the allocation of funding and defining responsibilities across sectors. There is opportunity to implement housing improvements in alignment with the increasing levels of urbanisation. Blurred lines between urban, rural and peri-urban settings brings new complexities which may change the motivation of sectors to implement housing improvements.

There are opportunities to implement educational awareness campaigns through existing communication channels (such as school curriculums) to enhance and support existing control methods. Main challenges include identifying / defining clear messages which are tailored to communities.

The third group discussed the opportunities associated with the ongoing rapid urbanisation in cities. Sixty eight percent of the world's population will be living in cities by 2050, but currently sixty percent of these cities do not exist. The movement of urban populations into peri-urban/ rural settings is also resulting in the loss of diversity, resources and increased risk of spill-over events. It is therefore essential to future proof our communities and plan for malaria smart development, rather than retrofitting systems.

There is a need to understand who is responsible for these interventions, with increased focus on the local government level. City level governments have more opportunities to engage with communities and therefore must be empowered to deliver better health services.

Discussion - All

- There is an opportunity for private sectors to engage with the mass distribution of bed nets, particularly in urban populations.
- It is an interesting exercise to the cost effectiveness of designing cities to be fit for purpose rather than retrofitting. Calculating the additional cost of building out aedes / stephensi may strengthen the case for more radical action
- Engagement of multiple stakeholders adds complexities to interventions however will have a larger impact if successful. The interventions discussed in this workshop are system interventions rather than technological interventions, with a more sustainable impact.
- It is important to engage with and inform developers of the cost of making development plans malaria smart. This will require the engagement of urban designers, planners, economists etc.
- In Kenya, following the devolution of the government there is now an issue with competing interests for limited resources. Therefore the focus is now on urban renewal which encompasses drainage, water, road networks etc. to improve the health of the city. COVID-19 is a valuable example of the importance of strong political will and risk communication within communities.

Wrap up and next steps/actions - Corine Ngufor & Justin McBeath (VCWG), Graham Alabaster & Peter Mbabazi (MSWG)

It is hoped that this joint session will be a regular item on the agenda. Participants were thanked and encouraged to join MSWG for further discussion of the topics addressed in the workshop.

Acronyms and Initialisms

BOVA	Building Out Vector Borne Disease in sub-Saharan Africa
Bti	<i>Bacillus thuringiensis israelensis</i>
LSM	Larval Source Management
MSWG	Multisectoral Control Working Group
RCT	Randomised Control Trial
VBD	Vector-Borne Disease
VCWG	Vector Control Working Group
WASH	Water Sanitation and Housing
WHO	World Health Organisation