



**Vector Control Working Group (RBM VCWG)**  
**17<sup>th</sup> Annual Meeting, Session 3: Thursday 3<sup>rd</sup> May 2022**  
Hosted Online via Zoom

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## **Session 3: Work stream 1 -Enhancing the impact of core interventions Co-Leads: Mary Kante & Allan Were**

### **Welcome- Allan Were, PMI VectorLink Project and Mary Kante, Eau Claire Consulting**

Allan introduces himself and welcomes the participants to the 3<sup>rd</sup> session of the annual RBM VCWG meeting. Today's meeting covers work stream 1: Enhancing the impact of core interventions and its objectives include reviewing the work stream vision, introducing the work stream task team leads, sharing key updates and new data with the VCWG members, and identifying key action items and meeting follow ups to achieve the vision of success of core interventions.

Mary introduces herself and shows the results of the visioning exercise from the previous VCWG meeting. As part of that exercise, the members reflected on trends that are seen and the concerns of the vector control community, including the declining ITN access and IRS coverage. The members envisioned a future in which we have overcome the challenges and we have achieved a world free of malaria. In order to achieve that members envisioned:

- Standardized methods and the ability to interpret and use data to make robust decisions.
- Availability of effective core interventions that are optimally selected and deployed.
- Better ways of understanding of mosquito populations, methods for identification of mosquito vectors, differentiation in active ingredients to rotate for IRS and overall improving our ability to fight insecticide resistance.
- Continuation of support to National Malaria programs and replication in other countries.
- Sustainability, local manufacturers, and suppliers, closing those manufacturing loops and recycling locally.
- Products that are available in line with global guidance and as appropriate and also in line with national standards and laws.
- Increased domestic funding as well for both IRS and ITN.
- ITNs lasting three years.
- Providing nets to people on a replacement schedule that meets their needs.
- Better IVM (Integrated Vector Management), improved housing tools, community centered programming and research.

### **WS1 Session 1: Joint Task Teams 1 and 2**

#### **Using data for the optimal selection of IRS and ITNs- National Malaria Program and donor experience and considerations**

**Task Team 1 co-leaders: Sarah Burnett, PATH; Levi Hinneh and Crispin Williams, NMCP Liberia**

#### **Using data for the optimal selection of IRS and ITNs- Otubea Ansah, NMCP Ghana**

Ghana is one of the 11 countries that contribute to over 80% of the worldwide malaria burden. However, the number of deaths has decreased from 599 in 2017 to about 275 in 2021. The strategic plan of the NMCP has three main goals: reduce malaria mortality by 90% by 2025, reduce malaria case incidents by 50% by 2025, and achieve malaria pre-elimination at six districts across the country by 2025.

Current vector control interventions include distribution of ITNs, IRS and larvicide in specific areas across the country, as well as procurement and supply chain, research, M&E, surveillance, and social and

behavior communication. The main data source used for the strategic plan is put in place with the guidance of WHO and stakeholders. The fundamental principle of the plan is the stratifications exercise, where the various regions in the country are categorized based on malaria burden. The stratification is done using data sets of incidence, prevalence from 2018 and allows the mapping of the country, which indicates the malaria interventions for every area across the country. This is for both for case management and vector control interventions.

For IRS interventions, all the regions and the districts with preexisting interventions are maintained and a number of districts that were eligible for IRS arose from the data. The insecticide used every year is decided by susceptibility tests that the NMCP run across the various sentinel sites and also from the IRS areas themselves. For the ITNs, the criteria used is that the district should have at least 1% parasite prevalence for malaria and almost everywhere in Ghana falls within this category. The IRS districts are excluded as people in these areas are using the nets less. The choice of the type of net each district gets depends on insecticide resistance in the area, the risk of prevalence, incidence, and mortality.

The results from the VectorLink IRS intervention showed a coverage above the intended coverage over 90%. The AGAMal IRS intervention was also able to achieve 100% coverage and in the last campaign NMCP was also able to achieve over the 90% target that was set. In conclusion, early planning and partner involvement is needed to allow for successful multiproduct campaign. Also, the availability of data is needed to guide the choice of intervention to ensure smooth planning and implementation of interventions that work. Finally, multiproduct choices and interventions are possible with commitment proper and continuous monitoring.

#### **Malawi presentation on use of data to deploy vector control interventions- Dr Michael Kayange, NMCP Malawi**

Dr Kayange provides some context on malaria burden in Malawi, prevalence, incidence, and mortality. The main vectors in Malawi are *Anopheles funestus*, which is the most predominant and most important for malaria transmission Malawi and *Anopheles gambiae*, most importantly *Anopheles arabiensis*. Malawi has a national malaria strategic plan, integrated vector control strategy and an insecticide resistance management plan. Regarding insecticide resistance there is quite good susceptibility across the country to carbamate and organophosphate insecticides, but there are challenges when it comes to organochlorines. The distribution of pyrethroid resistance is widespread and a decision is taken as a country not to deploy it as a standalone insecticide going forward.

Due to widespread pyrethroid resistance and effectiveness of PBO in restoring susceptibility, the NMCP decided to deploy PBO nets in the 2018 Mass Net Distribution Campaign. However, resources were limited. The 2018 Mass Net Distribution Campaign deployed 2 million PBO LLINs and 9 million standard pyrethroid LLINs. Also, IRS was deployed in only one district; there was not the financial support for more.

In all districts where PBO LLIN interventions were deployed, a 57% reduction in malaria incidence was noticed, a 14% average reduction was shown in the districts with pyrethroid LLINs, and a 45% decrease in the district with IRS deployment.

Based on entomological evidence and epidemiological concurrence, the NMCP decided to discontinue deployment of standard pyrethroid LLINs. The NMCP planned for PBO nets, but funding was limited. Collaboration with the New Nets Project (IVCC) allowed Malawi to deploy dual-active ingredient nets (Interceptor G2 and Royal Guard) on a pilot basis for evaluation. Evaluation is underway to determine impact of each intervention using HMIS data.

From 2018 to 2021 IRS interventions expanded from one to four districts, guided by high incidence and entomological data, excluding though the use of pyrethroids. The insecticides used are rotated, but unfortunately the classes of insecticides available are limited. With the support of PMI, entomological surveillance is conducted in 13 sentinel sites, providing data that are collated with epidemiological data, and decisions are made based on that. In summary, policy guidance is in place to support national vector control decision making, LLIN & IRS deployment is informed by entomological and epidemiological data and the routine data is used to evaluate the impact of new products. Finally, there is ongoing expansion of entomological surveillance to strengthen vector control decision-making.

#### **Data Use for Vector Control Deployment: A Global Perspective- Lilia Gerberg, USAID/PMI**

PMI supports evidence-informed deployment of both traditional and new vector control tools to ensure effective vector control and supports operational research as well as program evaluations in line with global guidance. Also, it supports universal coverage with appropriate vector control interventions that are deployed according to local data and recommends coverage with at least one effective vector control tool. This approach may entail sub-national stratification of interventions. The selection of a primary vector control intervention should be made based on insecticide resistance and vector bionomics data as well as other factors including community acceptance, cost, and overall budget envelopes, and is being guided by national strategies and policies.

PMI prioritizes entomological monitoring as a core intervention across countries in Africa and Asia. The data that we can obtain and share from this monitoring is used in several different ways. For example, insecticide resistance patterns, helping to guide the selection of both optimal ITN and IRS products and the rotation of insecticides for IRS. Spray quality and residual efficacy monitoring, seeing the quality of implementation and how long insecticides are lasting and providing ongoing support for durability monitoring. PMI partners with local research institutions, as well as national programs, to collect, analyze, and use data for decision making, and currently is supporting more than 50 local partners across countries. Regarding product selection, PMI supports the transition to new types of nets where supported by insecticide resistance monitoring data, as funding allows and in close coordination with national programs as well as other partners. Once transitioning, countries should be prepared to sustain that shift to new types of nets.

A lot of progress has been made in terms of improving the quality of routine data to help inform decision making and visualization is one way that can be helpful to bring together multiple data sources. So in Mali, the program distributed dual IG2s in the Sikasso region, but there were not sufficient quantities of nets to fully cover the region and so a prioritization exercise was undertaken. To make prioritization decisions, incidence and prevalence data, as well as data from entomologic monitoring sites were examined. Currently there is an ongoing evaluation to look at the impact of these IG2 ITNs, producing data that can be used to help inform potential expansion to additional districts.

There are several challenges that the programmes face, such as of prioritizing within limited budgets and determining how to best balance intervention coverage with cost and looking at the choice of most effective tools. Another challenge is using entomological and durability monitoring data for product selection and the timing of data collection, coordination among partners and awaiting WHO policy guidance. Finally, there are considerable logistical challenges for sub-national targeting of multiple products via multiple channels as well as the monitoring of those respective tools and interventions. PMI recognizes the need for further cost effectiveness studies to help use informed deployment of the new tools. As several countries undertake stratification exercises, clarity is needed on the parameters that are

being used in models given that the output of some of these models can be used to make funding decisions.

### **Interventions and product selection by country programmes with Global Fund grants- Kate Kolaczinski and Htin Kyaw Thu, Global Fund**

The Global Fund funding requests are expected to be based on a wider national control strategy, which is in line with WHO guidance, based on entomological and epidemiological evidence and aims to reach and sustain targets for optimal vector control coverage of interventions that are effective against the local vectors. The Global Fund is also looking for a transparently described decision making process that articulates what countries have achieved, what the ideal absolute plan is, and what is the prioritization process.

The challenge is growing for programs with the diversification of products, and not just within vector control but also malaria chemoprevention, vaccine and beyond. It is important to look at detailed relative cost effectiveness analysis to determine which is the best intervention for each setting sub-nationally, and what can be afforded within the space and how the durability of products relates to cost-effectiveness.

Epidemiological and entomological data underpin the decision between IRS and ITNs. With the arrival of at least one new class of insecticide treated nets, there are more options for programs who are looking at areas with high burden and pyrethroid resistance. However, the underlying decision between ITNs and IRS tends to often be driven by financial, operational and historical considerations, as well as community preferences.

The IRS product decision is made just prior to procurement and it needs to be based on up-to-date insecticide susceptibility data. The actual decision making at the time of procurement needs to be backed up by recent susceptibility data, the persistence of the product and the transmission season and the availability of supplies. For ITNs it is more complex. Most countries articulate their plan at the beginning when they make their funding advice, and then modification may be possible to scale-up plans for more expensive nets where cost savings are available at the time of procurement. It is challenging to balance the need for maximum coverage of the population with the most effective tools. Countries often then go through an operational filter to look at what would come out of epidemiological stratification and if it is operationally feasible.

The technical review panel (TRP) is an independent body of the secretariat that reviews the funding requests from the countries and makes technical recommendations on the strategic focus and technical soundness, etc. of the requests. The three major themes that arise from the TRP reviews are the choice of intervention, managing the risks that arise from intervention transitions and insecticide resistance data to inform net use. There are requests for more insecticide data to justify selecting more expensive net types, as well as requests for more recent data especially for those countries who are using old data to justify their proposals. There are also requests for more sufficient entomological monitoring plans and budgets to ensure procurement decisions are well justified in defending requests.

#### **Discussion:**

*Discussion of how monitoring data informs changing and updating targeting and strategy in Ghana.*

Ghana has 30 sentinel sites, and these sites serve as the same sites for both epi and ento data. We take data from these sites monthly and look at the data quarterly. If there is a need to change, we do not switch to another intervention, we think about which insecticide would work better than what is currently

being put in place. Review the potential need to change the choice of insecticide. Intervention choice would be looked at after implementing our 2021 to 2025 strategic plan, seeing how far we have gone and then can make those bigger changes.

*It seems that a lot of malaria on the Ghana map was in the border areas. Do you see that as being a problem and how much coordination is there, With Togo, Cote d'Ivoire, Burkina Faso? Also, in terms of ITN distribution strategies and sharing data across borders?*

It is something we do not yet focus on. We have people coming in from other points, and in many cases, populations speak similar languages and do similar things across the border. So invariably we end up covering them to an extent. What we need to do better is to look at this from the higher level where we look at the interventions we have in place and try to have interventions that would work for all the areas.

*Malawi showed some great data on the incidence reductions with your PBO nets, but do you have any data in the second year after deployment or even the third year to understand the longevity of those nets and the impact over time, as well as potentially different usage rates of the pyrethroid nets and the PBO nets that help in your thinking? Yes, we monitored the impact the year after the mass distribution. What we have seen is that there is a significant impact on malaria incidence reduction within the first year after net distribution, we see an all over 50% reduction and the second year we start to lose that impact and by the third year we completely lose the impact. We did investigate to find out what is happening and through durability monitoring we found that nets could last for 2 years. We looked at intervention and found that we do a lot of community engagement, interpersonal communication through door-to-door household visits as we do the household registration, during which we pass on the malaria prevention messages. These are quite key in trying to stimulate behavior change during ITN distribution and that is why we see high net usage and a huge decline in malaria cases. During the second year, this engagement is not supported financially and see loss of the impact. And during third year we do not see any impact at all. Other studies including MIS and malaria behavior survey show attrition of over 80%, in line with durability monitoring that nets are not lasting three years. Based on this, as a country we have decided to continue with net mass distribution every two years.*

*Are there thoughts to move away from DDT use or if the is plan to continue. And if the plan is to continue, what is the justification needed to include this additional mode of action in the Zambia program?*

Yes, they are moving away from DDT and they are moving more towards clothianidin, and they plan for cross-country distribution of those this coming year.

*In cases where you might combine IRS and ITNs, is the combination of ITN and IRS product type taken into consideration?*

We do not mix IRS with ITNs. What we do is that if we put in for example a mass campaign with new nets in an area, we try to ensure that those new nets go through all channels, including the continuous distribution channels as well so that types are not mixed.

## **Session 2: Technical updates Teams 1 & 2- Using data to inform optimal selection and deployment of core interventions and Addressing biological threats**

Julia Nanteza Mwesigwa (PATH) introduces the new session by reminding the two Task Teams' objectives and briefly previews the next presentations.

### **Global coordination for vector control supply chain- Eliza Walwyn-Jones, CHAI**

One example of global coordination is through the vector control task force. One of the key areas where the task force came into play was related to responses to COVID-19 disruptions. The task force meets once a month and includes a voluntary group of members based on the procurement donors and organizations providing technical assistance to guidance, as well as other technical and programmatic partners, who may be invited for specific conversations or for specific topics of discussion. Some of the key areas that are covered within the taskforce meetings are looking at some of these questions around operational issues that may affect supply chain. The aim is to help to foster this collaboration and communication with partners, to help consolidate responses to critical market bottlenecks and to help inform and provide communication and consolidation of ideas and recommendations. Some other issues that we are seeing are around quality, safety, and performance of vector control quantities. Finally, the task force is helping areas where there are shifts in implementation guidance. The importance of this task force lies in the fact that it is improving coordination across the global landscape of partners to help respond to urgent bottlenecks.

### **Defining malaria operational research priorities for sub-Saharan Africa- Roger Tine, PMI Insights**

The PMI Insights project is a new centrally funded mechanism for operational research, which will last five years. Its objectives are to support and drive country research priorities, and to support the design and implementation of modelling analysis and program evaluation studies, while ensuring use of study findings in inform program guidance. Prioritization exercises have taken place in several sub-Saharan countries and the objectives were to facilitate a process in collaboration with national malaria programs, in-country research and implementing partners, and funding agencies to identify a set of country-driven priorities and to foster alignment between country priorities with funding agencies with the overarching goal to have outputs which will be used in a global group by analysts as well as implementing partners.

The global research prioritization scope is to design operational research and evaluation programs for national malaria programs and elimination strategies that have promising evidence demonstrating the safety and efficacy approaches and tools to design and improve the delivery of effectiveness of malaria control. The activity helps also to identify common research questions that may provide learning opportunities to inform NMCP strategies, policy, and implementation.

The process was designed in five phases and started by designing the research process followed by the synthesis of existing information that was gathered from the document review, and then the stakeholder consultation process was conducted. There will be an evaluation by an independent committee, whose membership is adjusted according to these priorities and depending on the thematic areas. Finally, a dissemination tracking process and future plans will be updated.

The key priorities in vector control that have been identified are testing and evaluating different delivery mechanisms to reach and sustain high coverage of ITNs among hard to reach and higher risk population. The second topic was evaluating and comparing different insecticide management or rotation strategies on insecticide resistance development. Some priorities were identified in terms of testing and evaluating the effectiveness of different deployment and balancing approaches to maximize impact and evaluating the effectiveness of different opportunities to improve routine distribution for ITN. Other priorities were linked to assessing the effectiveness of innovative approaches to reduce costs.

Key takeaways have been gathered. For example, research priorities reflect persistent challenges for NMPs in the implementation of core interventions. NMPs reported having insufficient evidence on the effectiveness of specific interventions and integration packages and studies are needed in that area. Finally, it has been noted that many of the research priorities speak to broader health system issues that are contributing to gaps in malaria international progress, that issues need to be addressed to improve effective public health. The next step related to this project will aim to develop a mechanism to track progress against the research priorities and use of informed investment and a process to regularly review and update them. The full list of the questions and the priorities are available, and the report will be released soon.

### **New Nets Project interim results- Updates from pilot evaluations from Rwanda and Nigeria- Aimable Mbituyumuremyi, Rwanda Biomedical Centre and Okefu Ohoji Okoko, NMEP Nigeria**

The partners involved in this project include a variety of organisations and institutes and they are using enhanced surveillance activities to evaluate the impact of piloting different ITN types, such as IG2 ITNs, PBO ITNs and Standard ITNs. The different components checked are epidemiology, entomology, human behaviour, cost-effectiveness, and durability monitoring.

The design of the project and the protocol are different for each country. One of the study countries is Rwanda, where the malaria prevalence and the ITN coverage are studied with cross-sectional surveys. Since the distribution of nets and the deployment of IRS, there was a progressive decrease in malaria incidence. There is a greater reduction in IG2 ITNs areas and in areas combining IRS with standard nets. For the human findings, in-depth interviews were conducted, as well as focus group sessions. So far four rounds of data collection have been conducted and two more are to be completed. The aim of the analysis of these data is to assess the behaviours that impact malaria, to explore malaria prevention methods and bed net use, access, benefits, and challenges.

The findings from the studies concerning the bed net access showed that mass campaigns, ANC, and EPI are the main channels for acquiring bed nets. The participants were split on whether the bed nets distributed were sufficient and many were not aware of bed net distribution sites. The findings concerning bed net use showed that respondents from all the districts were using the nets during the night, as they were aware of their importance in the prevention of malaria. Special attention was reported for pregnant women, the elderly, and young children. The common bed net barriers are classified into three: seasonal differences, irritation from chemicals, and access, as distribution can be delayed.

In Nigeria, the project investigates five different areas, entomological, epidemiological, durability monitoring, cost-effectiveness, and behavioral aspects. The cross-sectional survey that took place at baseline in 2020 showed improvement in the reduction of malaria cases among children. In that intervening year, an additional SMC intervention based on the entomological stratification was deployed and that might have accounted for the sharp reductions that we are seeing at the moment.

Similar to Rwanda, in Nigeria human behavioral studies have been conducted and the findings showed that many of the participants found that the door-to-door method of distributing the nets was quite easy. This method was adopted due to COVID-19 as part of our infection mitigating measures. The other thing

that we found out was there was an inadequate number of nets and some participants requested more frequent mass distributions. Some of the people also noted that families who lived in remote areas may have a harder time collecting the nets. But one good thing about the national program is that we follow-up on all of this and incorporate lessons into the plans for ITN distribution every time mass distributions take place. We also try to explore what could be influencing the use of nets. Most of the participants stressed the importance of always using the bed nets and the awareness of the mechanisms of the net in preventing malaria transmission was the motivating factor. The barriers of net use were categorized into the seasonal differences, higher use during the rainy season and lower during heat.

The 12-month estimates of ITN durability showed that 100% of the nets were still in serviceable conditions, across some areas.

Across NNP pilots, the key takeaways are that mass ITN distributions are strongly associated with increased ITN use and decreases in malaria transmission. Secondly, regardless of which type of ITN was deployed, there was reduction in malaria transmission. And in areas of moderate to high transmission the distribution of any of the new types of nets seemed more effective at controlling malaria than campaigns distributing standard ITNs, although this finding was less pronounced in the West African settings with complex resistance profiles. Finally, a more complete and nuanced analysis will consider the access impact and durability of ITNs after more than one year.

#### **Overview of new IRS products – where we are now and what is coming down the pipeline- Christen Fornadel, IVCC**

There are several difficulties in choosing IRS products to rotate. Currently, there are five pre-qualified (PQ) third generation IRS products and these are non-pyrethroid long-lasting products. However, they only encompass two classes. These include pirimiphos-methyl and clothianidin, and we are hopeful for several products that are currently in the pipeline. There are products that are currently under PQ assessment. These are Imergard WP, Pirikool 300CS, Sylando 240 Sc and Vectron T500.

#### **VECTRON T500- Kunizo Mori, Mitsui**

VECTRON T500 is a novel IRS product which is developed for insecticide resistance management. The formulation type is wettable powder containing 50% active ingredient. The active ingredient, TENEBENAL, was discovered by Mitsui in 2007. Since then, collaborations with IVCC, LSTM and LSHTM have been made to develop the product. Lab and experimental studies and trials have been conducted in n countries including Tanzania, Benin, and Burkina Faso. In parallel, there has been work done on registration processes in sub-Saharan countries.

VECTRON T500 has long residual activity against resistant mosquitoes on all relevant surface. It is odourless and stainless and it shows great acceptability.

TENEBENAL™ affects a newly discovered site on the GABAA receptor of the insect nerve. Therefore, this is not affected by the target site mutations that lead to resistance to other insecticide classes including those which also interact with the GABA receptor. The TENEBENAL activity by Tarsal contact assay showed it is slow acting, and the activity reaches plateau at 0,001%. VECTRON T500 shows efficacy to resistance mosquitoes as well as susceptible strains. Experimental hut studies in Tanzania, Burkina Faso and Benin pinpointed the sufficient concentration of the product to be used and showed residual activity against resistance strains when covered both on concrete and mud for up to 18 months. Community trials to convince countries is showing excellence up to nine months so far.

## Questions:

*To Dr. Tine from the PMI insights presentation: Could you tell us which countries' NMPS are involved in this assessment? And if they had similar or different challenges across them?*

The stakeholder consultation involved 15 countries in Sub Saharan Africa and in each country the NMP was consulted and one to two research institutions. The countries were from West, Central, East and South Africa. And here, we share common themes that arise from this stakeholder consultation.

*To Dr. Aimable Mbituyumuremyi: Regarding the use of an observational study rather than a cluster randomized trial to look at the impact between two different net types and IRS plus nets - id you consider doing a cluster randomized trial for this when you were designing the study?*

Rwanda has been implementing different interventions countrywide, so it is better to continue the same framework of interventions using new types of nets.

*There are two other trials under the New Nets Project that are a cluster randomized trials that are doing similar comparisons, is that correct?*

Yes, the Benin trial is underway, with results expected shortly. And as we know, the results of the Tanzania trial were published. Beyond those two RCTs the NNP project was set up to have five pilot evaluations the examine the effectiveness of the nets in various settings.

*A report in Rwanda showed irritation from the chemicals and difficulty breathing with regards to the ITNs that were used. Was there any difference in that study between the different types of nets compared to previous studies or other net use?*

We are monitoring through the human anthropological collections, not just in Rwanda and Nigeria, but in Mozambique and Burkina Faso also as well. And so, we will be able to pull information together to see if there are any concerns between the standard bed net versus the new bed net districts. I do not I do not know that we have that information yet. But we will be compiling those anthropological results.

## **Session 3: Technical updates, Teams 3 & 4 Capacity building, localization, and private sector involvement for sustainable vector control and addressing non-biological threats**

### **Capacity building, localization, and private sector involvement for sustainable vector control- Samuel Asiedu, AGAMal and Chouaibou Mouhamadou, PSI**

The main objective is to support VCWG members in their effort to foster sustainable ITN and IRS interventions through capacity strengthening of NMCPs, local partners and the private sector. We seek to encourage active involvement of the private sector in deploying sustainable vector control toward malaria elimination. The global goal is to eliminate malaria. However, there are several things we need to consider. We want to support the health sector and make it a developmental issue and engage and involve the private sector (PS) in addressing malaria challenges. Organizations involved include Illovo Sugar in Malawi, AngloGold Ashanti and Benso Oil Plantation in Ghana, Uganda National Oil Company and Quality Chemicals in Uganda, Tinke Fungurume Mine in DRC, Mineracao Nono Astro in Brazil, Zambia Sugar, Konkola Copper Mines, Mopani Copper Mines and other from Zambia, ExxonMobil, Petronas and Chevron in Angola, Chad and Cameroon, Shell in Philipines and Marathon Oil in Equatorial Guinea. They provide e good examples of PS support in malaria interventions. There are also challenges and some lessons learned that could guide the development of best practices, which we will examine.

To engage the private sector there may be bottlenecks or gaps as identified by End Malaria Council & Funds. These are gaps faced by NMPs and are challenges that the private sector routinely faces and can help address. These include but not limited to financial, human resources, logistics, commodities and system development and strengthening.

The next steps that the Task Team may consider are:

- Defining the private sector (PS),
- Considering how to engage the PS in vector control,
- Supporting the need by helping the PS to develop programs,
- Conducting a mapping or landscaping analysis of the current context and roles of the PS in vector control,
- Assessing national capacities to engage PS (NMCPs/National Vector Control Committees ability),
- build on national strengths and build necessary capacity to involve PS,
- Defining and documenting the key success factors or expectations and challenges, discussing and implementing actions on how to fill the gaps.

### **Raising the Floor on Nets Update- Amanda McCoy, LSTM and Eddie Thomsen, I2I**

The major output of the project's meeting, as well as the theory of change can be found on the website. The areas that we need to focus on are explored through three work streams. One conducted landscaping exercises for ITN manufacturer quality assurance systems and case studies on ITN quality. Another focused on how to develop metrics of value beyond price. The first two work streams aim to identify opportunities to move the global quality framework, the specifications, and the quality closer to the performance space. This can be achieved by the development of guidelines on changes to a prequalified product, manufacturer audits and risk stratification and product testing guidelines.

Marginal willingness-to-pay for a more durable net analysis is answering the question of how much more would a country be willing to pay in theory for a more durable net. That is a decision that is going to be influenced by how long the baseline nets last, how much they cost, what are the costs we need to think about and how much longer will a more durable net last. We are trying to find the price thresholds or a maximum price that a country would or should pay for a more durable net. We are using real life price data from a database that we have from the Global Fund and PMI on ITN prices, and we are using net retention data. There are significant variations across countries and the results are sensitive to the baseline cost that we use. The two key messages are that we should potentially start thinking about market segmentation: which countries will yield the greatest return on investment for a more durable net? Results are highly sensitive to baseline costs and baseline values may change (increased costs etc.) and other costs (e.g. distribution) need to be included.

#### **Question:**

*To Amanda: Have you considered the increased durability in terms of the proportional increase in retention time, rather than in months?*

We have not yet, as this is something we have done very recently, but it is a particularly useful comment to think about to improve the analysis.

## List of acronyms

CHAI	Clinton Health Access Initiative
DDT	Dichlorodiphenyltrichloroethane
DHIS	District Health Information Software
DRC	Democratic Republic of the Congo
HMIS	Health Management Information System
I2I	Innovation to Impact
IG2	Interceptor G2
IRS	Indoor residual spraying
ITN	insecticide-treated net
IVCC	Innovative Vector Control Consortium
IVM	Integrated Vector Management
LLIN	long-lasting insecticidal net
LSHTM	London School of Hygiene and Tropical Medicine
LSM	larval source management
M&E	Monitoring and Evaluation
NMCP	National Malaria Control Programme
NTD	Neglected Tropical Disease
PATH	Program for Appropriate Technology in Health
PBO	Piperonyl butoxide
PMI	President's Malaria Initiative
PQ	Prequalification Programme
RCTs	Randomised Control Trials
RBM	Roll Back Malaria
SMC	Seasonal Malaria Chemoprevention
TDR	Special Programme for Research and Training in Tropical Diseases
TGF	The Global Fund
TRP	Technical Review Panel
USAID	United States Agency for International Development
VBD	vector borne disease
VCWG	Vector Control Working Group
WHO	World Health Organization