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THE PMI VECTORLINK PROJECT

POLICY, PEOPLE, RESOURCES: WHY SOME COUNTRIES HAVE SCALED UP WITH SCHOOL BASED DISTRIBUTION, WHY OTHERS HAVE NOT, AND SUBSEQUENT RECOMMENDATIONS

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ACRONYMS

ANC	Antenatal Care Clinic
CBD	Community-Based Distribution
CD	Continuous Distribution
CDWG	Continuous Distribution Working Group
EPI	Enhanced Program for Immunization
GF	Global Fund
ITN	Insecticide Treated Net
KII	Key Informant Interview
MOE	Ministry of Education
MOH	Ministry of Health
NGO	Non-Governmental Organization
NMP	National Malaria Program
PMI	(U.S.) President's Malaria Initiative
SBC	Social Behavior Change
SBD	School-Based Distribution
STTA	Short Term Technical Assistance

EXECUTIVE SUMMARY

Insecticide treated nets (ITNs) are a proven malaria control tool to prevent illness, severe disease, and death in endemic countries. ITNs are delivered through mass campaigns as well as routine continuous distribution (CD) channels to ensure maximum net coverage among at-risk populations. School-based distribution (SBD) channels, where ITNs are distributed directly to students in the classroom, have been piloted by several National Malaria Programs (NMPs), and in two countries, SBDs have been scaled up to national or subnational levels. To explore how countries determine whether or not to scale up CD following pilot trials, VectorLink conducted 30 key informant interviews with NMPs, implementing partners, donors and global experts. Additionally, the study aimed to gather lessons learned from SBD implementation as well as recommendations for future scale up.

Participating countries were divided into three groups: 1) Country Set A - countries that have adopted SBD at national or sub national scale, 2) Country Set B - countries that have conducted SBD pilots but have not implemented them at scale, and 3) Country Set C- countries that have not conducted an SBD pilot but are interested in doing so. After interviews, a qualitative analysis was conducted to identify key themes that emerged from these discussions. Results provided general views on SBD from the three country sets as well as an understanding of the drivers and feasibility of policy introduction. Conversations were also held on the partnerships, coordination, and collaboration required to implement SBD.

Among the countries that have implemented SBD at the national or sub-national scale (Country Set A), participants shared many benefits of SBD, including downstream benefits for children and their families. Key challenges remain in ensuring net access for hard-to-reach children (such as those living in remote locations), updating enrolment data, and transporting nets. For successful implementation, participants shared that a strong social and behavioral change (SBC) element is needed alongside high quality enrolment data and net distribution to teachers. Participants from Country Set B shared similar positive sentiments with SBD, with most highlighting the role of children as change agents in their communities. Key challenges included not being able to reach additional populations, such as the elderly or adults without children, or those with children who do not attend school, as well as the overdependence on mass campaigns. Lack of resources was shared as the main factor preventing these countries from scaling up SBD. For participants interested in implementing SBD (Country Set C), it was clear that existing CD channels must be strengthened before SBD can be added.

This activity highlights the importance of getting the right people in the room with the right evidence and resources, with existing stakeholder commitment or project support needed to drive the agenda during the initial stages of SBD implementation. To enhance SBD implementation, countries with existing, mature SBD channels should provide technical assistance to help streamline the implementation process. Additionally, future scale up of SBD could consider how to increase coverage of hard-to-reach groups, the elderly, adults without children or children not accessing school, and possibly also the teachers participating in SBD programs.

1. INTRODUCTION

Global efforts to reduce the burden of malaria include large-scale distribution of insecticide treated nets (ITNs) through mass campaigns and continuous distribution (CD) channels. CD channels include two routine distribution channels (antenatal care clinics (ANC) which distribute nets to pregnant women and Enhanced Program for Immunization (EPI) visits), as well as school-based distribution (SBD), community-based distribution (CBD), and the private sector which includes social marketing.

A number of National Malaria Control Programs have conducted pilots to inform their scale-up of CD channels. Based on the results of these pilots and findings from evaluations, and a lack of resources, some countries may opt not to scale up CD such as the Democratic Republic of the Congo, Guinea, Mozambique, and Nigeria. Others may deploy CD at a sub-national level, such as Zambia which has had small-scale district level implementation of SBD over several years (2016-2021). South Sudan, Nigeria, and Kenya, Madagascar, and Zanzibar have implemented CBD, however, Madagascar and Zanzibar are the only two countries to have expanded the programs to national or sub-national scale. In 2022, Liberia piloted SBD.

This study aims to explore how countries determine whether or not to scale up CD following pilots and provide recommendations for National Malaria Programs (NMPs), implementing partners, and donors on how to do so. This report focuses on the lessons from SBD as it was the most familiar channel to most of the respondents.

1.1 METHODOLOGY

1) Recruited NMP members for interviews.

The U.S. President's Malaria Initiative (PMI) VectorLink project sent emails to the NMP directors in countries in which VectorLink was operating asking for permission to carry out the interviews and whom should be interviewed. The countries approached were divided into three groups:

- "A" countries have adopted CD at national or sub national scale.
- "B" countries have conducted CD pilots but not implemented CD at scale.
- Country "C" has not conducted a CD pilot but is interested in implementing CD at scale.

2) Key informant interviews (KIIs) with NMP, Ministry of Education (MOE), donors, logistics and implementing partners, and research organizations (see Annex B for KII outlines in English, also available in French).

The PMI VectorLink project carried out 30 KIIs with decision-makers, policymakers, donors, and implementing partners. Several global thought leaders in CD policy, research, and implementation were also interviewed and shared perspectives on additional country pilots. The study team has ensured anonymity for participants by keeping all recordings and transcriptions in a secure location, blinding participant names, and grouping countries under the A, B, and C categories.

3) Analysis with Dedoose.

Recordings were transcribed using two online transcription services (Otter.ai for English and Sonix.ai for French). Transcriptions were uploaded into the qualitative analysis software, Dedoose (Version 9.0.54), which allowed for collaborative coding among team members. A codebook was created using the interview guides and study objectives, with additional codes added throughout the coding process. Once all transcripts were coded, code reports were created based on major code groupings and downloaded by country set (A, B, C, or Global). Reports were compared between team members to identify emerging themes and subthemes. Key figures and tables were created to display the study results.

4) Literature review.

A literature review was undertaken by PMI VectorLink to see if there are lessons to be learned from the scale-up of other malaria interventions or other such activities such as Intermittent Preventive Treatment During Infancy (IPTi) and Seasonal Chemoprophylaxis.

2. RESULTS

2.1 KEY FINDINGS FROM COUNTRY SET A: COUNTRIES THAT HAVE ADOPTED CD AT NATIONAL OR SUB NATIONAL SCALE

Additional quotes presented in Annex A, Table A1.

2.1.1 GENERAL VIEWS

Participants expressed many benefits that SBD has for children and their communities, including multiple downstream and longitudinal effects (Table A1, #1). For example, participants noted that children are now in a role as "change agents", sharing their knowledge on net use with their parents and multiple generations to come. By providing children with a net and educating them at a young age, the SBD channel can have a larger range of impacts alongside malaria prevention. Participants indicated that improper use of nets is a challenge and educating children through SBD can help address this as the children teach their parents how to properly use the nets. One participant shared:

> *"[Parents] tend to have a lot of pressure from their kids to use nets. The children themselves are serious advocates for us because they really do believe the things they are taught in class. And so we leverage on that and make sure the whole message is pushed across within the community" (Participant 21A).*

Proper distribution of nets, as well as the supply chain and transportation of nets, were major challenges identified by participants. For example, sometimes the third-party logistics (3PL) contractor did not know where the schools were located in order to deliver the nets. Additionally, while some participants expressed that SBD helps to protect the most vulnerable populations, many participants shared current challenges with distributing nets to hard-to-reach groups. Schools for children with special needs, as well as schools located in remote communities, were discussed by participants as locations needing additional resources for SBD implementation (Table A1, #4). Timing was also a concern for protecting these vulnerable groups, as seasonal rains caused delays to net supply due to roadblocks.

Participants also discussed data reporting and data quality. Multiple participants expressed concerns that children were being left behind, as nets were distributed based on enrolment data and there were cases of children switching classrooms or being absent when nets were distributed (Table A1, #3). On the other hand, participants shared that the focus on enrollment data was positive, as it reduced overall costs, is an existing system for partners to work with, and is present at each school.

Participants also voiced concerns with the high cost of storing and moving nets, as well as halts in training during the pandemic. Yet another challenge noted was the high staff turnover, which necessitated more trainings for new employees (Table A1, #5). Regardless, participants were very realistic and optimistic in facing these challenges. One participant shared:

> *"Each year brings up something. What we do is that we just put in place a mechanism for addressing challenges as they arise. We can't be naive to think that the system must be perfected to 100%" (Participant 22A).*

2.1.2 ADDITIONAL FINDINGS: DRIVERS OF POLICY INTRODUCTION, FEASIBILITY, PARTNERSHIPS, COORDINATION, AND COLLABORATION

Participants discussed the enabling factors of SBD, including feasibility, coordination, and partnerships.

There were many factors that made SBD an ideal CD channel for providing nets outside of mass campaigns. The education system provided an existing data base through enrollment data and promoted health equity

among children making it more captivating to policymakers (Table A1, #2). On the other hand, partners have recognized that the reliance on the school system comes with inherent challenges, such as delays in net distribution during teacher strikes.

Participants shared that existing stakeholder commitment in the country and/or the presence of a well-established malaria project (e.g., VectorWorks and VectorLink) were key factors for the program's success. At the beginning stages, participants highlighted the importance of the tool NetCalc, which was used to provide modelling and estimations for the number of nets needed at the classroom level to maintain access. One participant shared:

> *"And that is because the NetCalc simulation always indicated that providing nets for was able to sustain coverage. And so it provides a very good opportunity for us to reach households, and you realize that in [Country X], school rates in terms of attendance rates, it's quite high. And so there is quite a good likelihood that a lot of households are getting met through the school system. So that is one of the reasons why it's it remains a very important keep up strategy" (Participant 17A).*

The NMP as well as the Ministry of Health (MOH) and MOE for these countries were shared as the key players in establishing these distribution channels. Additional partners, such as the Global Fund (GF) and PMI were helpful in providing the funding, evidence, and research to drive the program (Table A1, #11).

Participants expressed their thoughts on mass campaigns, mentioning both benefits and limitations relative to SBD. For example, participants appreciated that teachers could get nets through mass campaigns, as they are currently not provided one in SBD. They also shared that mass campaigns are accessible to the community and allow elderly people and people without children to benefit and receive a net (Table A1, #6). On the other hand, participants expressed concerns over how expensive mass campaigns are, noting that it might be more effective to "drip nets" into their community as to not let any nets go to waste. One participant noted:

> *"Sometimes there's too many nets with mass campaign. And people, their own net is okay, so they don't want to use the new net. So they might have to store it and it could get damaged or it's wasting the insecticide, where it's the PBOs, the resistant. So there's issues around that whereas if you have a system that just continually dripped nets in when they were needed, it might work better" (Participant 20A).*

2.1.3 Next Steps: Lessons Learned and Recommendations

Participants shared lessons learned through the initial stages of SBD and provided recommendations for improving these distribution channels moving forward. One participant suggested the focus needs to be placed on strengthening the programs that are already available and established before adding any additional channels. Another participant shared that government support has been key to the success of these channels, and that this relationship must be maintained for SBD to continue to be effective (Table A1, #6).

Many participants shared that if countries are going to implement SBD, then a strong social and behavioral change (SBC) component must be included (Table A1, #15). This is especially important if countries aim to have long-term benefits from SBD. Other participants recommended that additional efforts must be placed on making sure enrollment data is accurate and up to date, as this data can have direct effects on the resources provided to a school. Lastly, it was emphasized by many participants that teachers should be given nets through SBD channels (Table A1, #13). They shared that this would not only help motivate teachers, but also prevent teachers from getting malaria and missing school days (Table A1, #14).

Overall, participants ended interviews with encouraging comments for other countries interested in establishing these channels. One participant shared:

> *"I will encourage other countries to get on board so that we can become disease free. When the children are healthy, they don't have malaria and they are not anemic. They can stay in school, they can learn the current impact, and they become productive citizens. Then in time, the nation progresses" (Participant 18A).*

2.2 KEY FINDINGS FROM COUNTRY SET B: COUNTRIES THAT HAVE PILOTED CD BUT HAVE NOT SCALED UP

Additional quotes presented in Annex A, Table A2.

2.2.1 GENERAL VIEWS

All the informants from the pilot countries were very positive about the SBD pilots and one mentioned the "fantastic" reception and good collaboration all around.

SBD can add to the pool of nets in the household and the pupils can be "change agents" by bringing nets into their households and sharing the SBC messages disseminated by the teachers (Table A2, #1).

> *"We are sure that the household owners receive a net from their children. And through doing this, we are also inculcating a sense of eliminating malaria or individuals in their own life protecting themselves from diseases like malaria. So we're inculcating into the future generation and at the same time, we are looking at it the current generation being protected" (Participant 5B).*

All interviewees mentioned lack of resources for both ITNs and implementation as the key issue in preventing scale-up of SBD (Table A2, #2).

One or two informants mentioned that there seemed to be an overdependence on the distribution of ITNs through mass campaigns and there is an assumption that SBD is only used for "keep up." There was widespread belief that CBDs and SBDs are "niche players" and "third in line" when it comes to receiving financial support in comparison to mass campaigns and routine distribution (Table A2, #5).

> *"Well, it's definitely sort of the third in line when it comes to time and attention, and a feeling of impacting its scale" (Participant 1B).*

> *"One term that used to be tossed around quite a bit of catch-up strategies versus keep-up strategies. I think, we pretty much view school based as a keep-up strategy. And we have a major need to catch up" (Participant 1B).*

The primary limiting factor to scale-up, mentioned by all interviewees was the lack of resources for both ITNs and implementation (Table A2, #2).

The potential challenges of working with another Ministry (i.e., the MOE rather than the MOH) was also raised by several respondents (Table A2, #3, #4).

> *"And. I would cite the positive and negative that you're working with different collaborators, you're bringing in Ministry of Education, schools, teachers, and then other people you work with sort of day to day and routinely plan with and routinely strategize with. So when it comes to developing, like we just did a malaria program review where we did a new strategic plan with the country. They're not necessarily, you know, at the table" (Participant 1B).*

All participants indicated that SBD not reaching other groups (e.g., the elderly and houses without schoolchildren) is a challenge. It was clear that some people think that the net is for the pupil and not the household in general. Some participants did not understand that the correct quantification of classes and therefore nets is essential to achieve the required access to ITNs.

CBD was mentioned as one way to reach those households without children at school.

> *"Among other things that I talk about is if we go for school distribution as a main, then we need to do continuous distribution, maybe via community distribution, so that for a population that or bed space is created for people who are not in school" (Participant 4B).*

The issue about the private sector logistics partners being unable to find and/or reach the most remote rural schools was mentioned. However, it was stated that generally, through partnership with the district education officers, this problem was resolved (Table A2, #6).

One participant raised a concern regarding the storage of nets, but they also were aware that this can be overcome by cutting out the need for district level storage if nets can be taken straight to schools, as often occurs in the up-scaled countries (Table A2, #7).

Participants noted that accurate and early quantification of nets to enable appropriate access and timely procurement was essential (Table A2, #16).

2.2.2 Additional Findings: Drivers of Policy Introduction, Feasibility, Partnerships, Coordination, Collaboration

The program managers should drive scale-up of SBD to additional districts by taking advantage of existing structures that can provide assistance, such as technical working groups (Table A2, #9). No one was aware of any organizations that might be opposed to SBD. On the contrary during pilots, it was indicated that the districts not included were questioning why they were not included in the implementation as they had no opposition to it whatsoever (Table A2, #8). The idea that net distribution at school could be an incentive, similar to school feedings, was mentioned as something that was of interest to stakeholders in SBD (Table A2, #10). There was one country where an SBD pilot had taken place and it was noted that the mass campaigns were not the best quality. This resulted in a push to introduce SBD (Table A2, #13).

Participants expressed concern that there is inadequate planning and implementation at scale for SBD, even though it is in the National Strategic Plan. Several key informants believed if mass campaigns could achieve high access, then CD channels could take over or be used to reduce dependence on mass campaigns.

> *"If we have good continuous distribution system, I think we can reduce on the request we make for campaigns" (Participant 3B).*

Being able to use the existing education systems was highlighted as a bonus by some participants (Table A2, #11).

> *"I think one other aspect is, it should also be strong on the aspects that we're building on existing systems and not necessarily reinventing the wheel and bringing totally new things" (Participant 2B).*

Some informants pointed out that it might not be possible to distribute through all schools and that for scale-up the decision may be made to target certain epidemiological areas.

All informants stated that funding was the issue and that this was both because mass and health facility distribution is prioritized over SBD (Table A2, #15).

> *"I don't think there's been a strong push or, you know, dance around the costing of this intervention. In that regard, and that, I think, is a very important consideration for those that guide policy take into consideration as an addition to that, because we're so focused on the mass campaign" (Participant 2B).*

In addition, SBD is not considered in planning activities (Table A2, #14).

> *"The answer they will give you that it's not being scaled up, is because there's been no money to procure ITNs. But like I said, a while ago, based on what I've seen, the reason there's been no money, I could be wrong, is because nobody stands up for the strategic plan and says, Hey, here's our plan, here our needs, and these are the quantities of nets which we would like to distribute through this channel over the next three years" (Participant 6B).*

In one country it was stated that the SBD pilot or small-scale implementation was only occurring where nets were left over from other interventions. Some informants said they thought SBD was less expensive than mass campaigns. In general, donor partner commitment was said to be lacking for SBD. PMI was recognized to be the most engaged partner regarding the financing of CD in general including routine distribution.

2.2.3 Next Steps: Lessons Learned and Recommendations

Several informants said that they had been positively influenced by hearing about Ghana's successful national scale-up of SBD and it encouraged them to consider SBD in general.

There was a consensus among interviewees that reaching out and using the up-scaled countries lessons learned was important and that of course they should use lessons learned from their own pilots for their country scale-up. It was also raised that there had been a lack of advocating to those in more influential positions in the MOH and MOE, for scale-up of SBD even after pilots had taken place.

> *"Countries like Ghana and Tanzania. We would also want to be reaching out be more willing to listen to what is already there, and then trying to adapt and see how we can implement it" (Participant 4B).*

It was stressed that SBD needs to be scaled up to have an impact and that if catch-up distribution occurred then maybe mass campaigns could be phased out (Table A2, #16).

> *"So school based distribution. I think it's a good distribution channel. If you do scale up. You can only appreciate the benefits if you scale up not the way we've been doing it in Country X" (Participant 3B).*

2.3 Key Findings from Country C: Has Not Piloted CD but is Interested in Conducting CD at Scale

Additional quotes presented in Annex A, Table A3.

2.3.1 General Views

All informants from the country with no school distribution said that ANC, EPI, and SBD are part of the national policy and included in the National Strategic Plan. These channels are seen as a good way to maintain universal coverage between mass campaigns, but none of the participants considered these channels as a potential replacement for mass campaigns. Informants noted that a benefit of routine distribution is that it is less expensive than a mass campaign.

However, informants in one country noted concerns that population net use is low, and the reasons why are not always well understood. The main challenge for routine CD is frequent stock outs. Informants said this has long been a problem for ANC at health facilities in regions where the government is responsible for the net supply chain. The United States Agency for International Development Global Health Supply Chain – Procurement and Supply Management project through PMI helped address stock issues and there is now an adequate and consistent supply of ITNs for ANC at the health facilities they target.

Informants expressed that stakeholders want the EPI channel to be implemented in this country. EPI is supposed to have been started but is not yet fully operational. Informants thought this may be due to challenges with procuring the large number of ITNs needed for all facilities and logistical issues. All informants shared concerns that these issues need to be ironed out before attempting to introduce SBD.

> *"At the moment, the school distribution has not yet been adopted, but it is provided for in the current strategic plan … the problem is that for the moment, we do not yet have enough mosquito nets to cover this population [school children] …we preferred to start directly with the infant. And later, we will extend to school structure." (Table A3, #4).*

2.3.2 Additional Findings: Drivers of Policy Introduction, Feasibility, Partnerships, Coordination, Collaboration

The three channels (ANC, EPI and SBD) are included in the National Strategic Plan. The MOH is the main decision maker and the NMP is the main technical advisor. PMI, GF, EPI, MOE, and Population Services International were frequently mentioned as key stakeholders that were involved in the National Strategic Plan development or would need to be involved in plans to operationalize the existing strategies.

Some informants noted the decision to include these channels in the plan was based on a perception that the World Health Organization advises all countries to use these channels since evidence has shown the channels work in other countries. Some informants mentioned that simulations using NetCalc that showed SBD could increase net access, convinced key stakeholders to include SBD in strategic documents.

"The simulation shows that this is feasible…and it is also part of the new strategic plan. In this case, it's for the future" (Participant 29C).

Informants agreed that channel operationalization should be gradual and that operational kinks should be worked out with each channel one at a time before introducing another channel. Evidence that malaria morbidity and mortality is mostly in children under five, convinced stakeholders to try the EPI channel first. Informants hypothesized that if evidence came up showing the burden is in school children or that malaria affects school attendance, these findings may convince stakeholders to start operationalizing SBD.

"I think we started with the channels that contribute the most to a significant reduction without being very expensive…if we look at mortality…pre-school children, so before school, less than five years, they are the most vulnerable…I think that's why we went with the distribution in vaccination…the data show that malaria mortality among children already in school...is not that significant." (Participant 28C)

There is a will to implement all three channels, but the main reason EPI/SBD haven't been implemented is lack of operational feasibility due logistical challenges and a lack of funds for net distribution in schools. However, it was agreed that despite its challenges, CD is a feasible way to fill gaps between mass campaigns.

"If we have not yet been able to make mosquito nets available to schools, it is really not because we do not have the will to implement this policy. This is just because we do not have the funding to acquire these nets at and see the availability at the level of all school structures and educational institutions" (Participant 30C).

2.3.3 Next Steps: Lessons Learned and Recommendations

The next steps are to begin operationalizing EPI distribution in the near future. Once this channel is shown to be successful, SBD will be introduced. Lack of funding for additional nets was identified as the biggest challenge for SBD implementation so informants recommended finding donors who would be willing to fund the additional nets. Some recommended doing a pilot in a targeted area first, then deciding whether and how to scale up based on the findings.

2.4 Key Findings from Global Experts

Additional quotes presented in Annex A, Table A4.

Participants mentioned many benefits from SBD including that it is the only proven channel, beyond mass campaigns, that can deliver a lot of nets into communities to improve and/or maintain access (Table A4, #1).

"So, as we all know, continuous distribution is a way to sustain coverage levels. And in some countries, between mass campaigns, and in some countries to offer an alternative to sporadic campaigns by having a continuous influx of nets" (Participant 15G).

SBD is flexible and the number of classes receiving nets can be adjusted to reach the country's target access.

School children can be the agents of change- bringing not just nets into communities but also the SBC messages about proper use and care. It was pointed out that school children may be asymptomatic but can be parasite reservoirs (Table A4, #2).

"I think school distribution provides an opportunity to protect vulnerable age groups, right, that have high proportion of malaria parasites, they are this sort of like reservoir of transmission, even if they are frequently asymptomatic. And the annual distributions of those nets into those families with school kids, especially at the primary school level, where school enrolment is high, is just a powerful channel to get a lot of nets into a lot of families at one sort of physical location in the community" (Participant 14G).

It was highlighted that net use can prevent absenteeism due to malaria and that children will have more energy if they are sleeping well or not suffering from illness (Table A4, #3).

The main limitation mentioned was that not all households have children at school (although a high proportion do) and that these households may not actually need the nets (Table A4, #5). Several informants mentioned that, for the channel to operate optimally, a country must have high enrollment rates which might not be the

case throughout all regions of a country. Overburdening the educations system was raised as a concern, however it was also noted that the actual distribution of nets is only usually done over a day or two. There may also be equity issues where school fees are charged (Table A4, #6).

As with any malaria interventions, a high-quality implementation is necessary.

> *"In Country X, I have doubts about whether that channel is doing what is what it's expected to do, or what it's hoped to do. And in the numbers of nets that they want to put through that channel. So I think school distribution, as with many malaria interventions, the impact that you get depends on the quality of the implementation, and sort of how much of it you're doing. And you can get a lot more nets out with a large program. Of course, that costs more money" (Participant 14G).*

Interviewees were concerned that if the correct mitigation measures were not in place, leakage of nets from ANC and EPI channels and SBDs into the commercial sector would occur (Table A4, #7).

Participants noted that there are some countries, such as Sudan, where the infrastructure may not be able to support CD (Table A4, #4). One person said that to implement CD at scale it might require considerable revision of a country's strategy to ensure that the cadence of SBD was in-line with other strategies such as full or partial mass campaigns.

2.4.1 Additional Findings: Drivers of Policy Introduction, Feasibility, Partnerships, Coordination, Collaboration

> *"I think the funding issue is just as important as the policy issue, funding kind of support policy decision. But in the end, I believe we had support, you know, from the various ministries involved to do the pilot, and then to scale that up at the national level" (Participant 14G).*

Evidence from pilots were mixed. Small scale pilots in Nigeria and in Mozambique were unimpressive-in Mozambique for example there was no difference in coverage in the control and SBD intervention areas (Table A4, #24) but the pilot in Ghana was carried out in the whole of the Eastern region and the results were encouraging.

> *"...there was an evaluation, which showed that there was a significant increase in- then called universal coverage" (Participant 16G).*

The CD website was named as a go to resource although the one participant said that it is not used by busy NMPs because they don't have the time.

The importance of an enabling environment (Table A4, # 27) was stressed by all participants and that the VectorWorks project was intimately involved and engaging all stakeholders including PMI, who were committed to supporting financially. In addition, the necessity for consultative meetings was stressed by many participants to be able to gauge acceptability and operational feasibility of some of the different channels (Table A4, #9; #18; #20; #22).

The value of not only projects, but projects with in-country offices was stressed by several key informants. The VectorWorks projects ensured that all relevant stakeholders and implementing partners were at the consultative meetings and offered short term technical assistance (STTA) to countries that were interested in implementing CD. However, it was noted that after the project consultant had left the country, focus may have waned or even changed (Table A4, #10; #11).

None of those interviewed felt that any organizations were actively opposed to CD channels such as SBD. However, several said that individuals from the Global Fund had been a bit skeptical about whether it was worth doing. It was acknowledged that this attitude now seems to be changing and that in Tanzania for example, the Global Fund are now supporting the School National Program in 12 regions.

Cost effectiveness was deemed to be one of the drivers of getting SBD up and running. The importance of the NetCalc tool for not only quantification but also for decision making regarding the most appropriate channels for a given country was stressed by many. It was also noted that some countries had to be guided into prioritizing those channels most suitable for their country. This led Madagascar, for example, to implement the

CBD channel. The pilot showed that there was a significant difference in access in the CD pilot districts which was comparable to the access obtained in the mass distribution districts.

> *"…show the channels were comparable, that is mass distribution, and school distribution. And that considering the fact that you don't have to put so many nets out there to school distribution, and the operations are not as endless, laborious, as mass distribution, because you are using existing channels" (Participant 16G).*

> *"The most important point to all countries is that you should use your existing systems and structures that are the strongest for any of the channels you intend to use. This led to Madagascar for example, doing the community channel and the pilot showed that there was a huge difference in coverage in the pilot districts lending a comparison to mass distribution carried out in other districts" (Participant 16G).*

Interviewees stressed that adequate funding for CD activities in general was an issue and has been affected even more by the more recent global financing constraints.

> *"So I think the biggest thing is the funding, and whether or not there's like disposable extra money to throw towards school distribution, and it's just not there. Even now, even less now" (14G).*

Several participants mentioned that the continued emphasis on mass campaigns may be due to "perverse incentives." Mass campaigns provide many people with income over an extended period. The incentives involved in SBD may not be considered as lucrative (Table A4, # 15). Some of those interviewed mentioned that funding may depend on the individuals who have access to resources and that they are willing to make scale-ups work (Table A4, #12; #13; #17).

The relationship between implementing partners and host governments was also discussed, and that some tensions may arise when priorities are not aligned.

> *"So I think that a lot of this depends on individuals who have access to resources, and are willing to, you know, either try something out or believe that it's going to work or believe that it's going to be beneficial in some way. And, to make those scale ups work, that things happen. I mean, now we're at the point in 2022, where global fund has just started doing their own school-based distributions in the Global Fund funded provinces" (Participant 14G).*

Campaign integration was mentioned and that there is increasing reflection on how to maximize resources and "do no harm". Informants noted concern for the potentially disruptive and expensive effects of national surveys and that they can affect routine distributions (Table A4, #19).

2.4.2 Next Steps: Lessons Learned and Recommendations

The importance of getting the right people in the room with the right evidence and resources was stressed repeatedly and that at least initially, a project or organization may need to drive the agenda (Table A4, #25).

> *"So, for me, I think that there should be a project or an organization that is keen in driving that agenda and making sure that you have the ministries and other implementing partners, and donors buy in into that approach or channel for distribution" (Participant 16G).*

Several emphasized that a pilot should not be undertaken unless there is a road map to scale-up.

> *"It doesn't make sense just to do sort of a pilot if there's not an attempt to roll it out at a national or sub national level. And so just ensuring at the onset that all stakeholders understand what it is, what it entails, and are committed, if it makes sense in their country to achieve their coverage levels, to commit to it because it does require inputs" (Participant 15G).*

It was noted that the processes and steps for implementation continue to evolve and that each year lessons learned should inform the next year's implementation. The long-term strategy must be made upfront and reviewed as necessary (Table A4, #25).

It was also emphasized that for an intervention such as SBD, the quantifications for nets should not be static but need to be calculated for intended access each year. This occurs currently in one country but not in the other. Net durability was a concern for some participants, and one said that ITNs are not lasting as long as they used to and, if this is the case, then SBD or CBD into communities may be a more viable option to keep up with needs (Table A4, #23).

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 CONCLUSION

In conclusion, this activity highlights that for a country to scale-up CD activities (such as SBD), policy needs to be in place, as well as a "critical mass" of the right people (in the MOH, MOE, and Ministry of Finance) and resources coming together at the right time. Figure 1 shows that scaled-up countries (A) have these three assets in place, whereas pilot countries (B) have some resources and people available, but not the "critical mass". Country C has a policy in place and some people interested and committed but not enough.

Figure 1: Policy, People, and Resources Available for Each Country Set

Country Group	Policy	People	Resources
A	Fully available	Fully available	Fully available
B	Fully available	Partially Available	Partially Available
C	Fully available	Partially Available	Not available

3.2 RECOMMENDATIONS

1. Pilots should not be undertaken without a clear pathway to scale-up.

As mentioned in the introduction, country pilots are meant to provide evidence for the scale-up of CD. However, many countries do not scale up CD following the completion of CD pilots. Some of the respondents emphasized that a pilot should not be undertaken unless all the resources for scale-up are in place. Ideally, pilots should be designed and budgeted to demonstrate impact on access and ability to achieve coverage targets or other benefits.

2. Involve a Project or NGO/INGO type of organization to accelerate start-up.

Many informants recommended the involvement of a project (international non-governmental organization [NGO] or local/indigenous NGO) or another organization to support the NMP and other relevant stakeholders to maintain focus on the pilot and scale-up of CD implementation. In fact, it was even stated that the difference between the two countries that have scaled up and those that have not, was due to the presence of a project office in both those two countries. Support through STTA was given to those countries which then piloted SBD, but those pilots did not lead to any significant scale-up. In any case, more emphasis on CD should be available within NMPs through convening and running continuous distribution working groups (CDWG) or some such body within the current vector control structure.

3. Promote CD more effectively.

There is a strong perception that CD is a niche player and deprioritized after mass campaigns and routine distribution. The majority of those interviewed are not aware of the Tanzanian experience with SBD and that

the recent publication (Koenker et al 2022)[1] shows that optimal CD interventions can result in providing better coverage than carrying out mass campaign every three years, whilst requiring 14% fewer ITNs. These findings should be disseminated widely and NMPs should be more effectively engaged. Informants were not generally aware of the costs of SBD. There seemed to be a general perception that both donor and country costs were less than those for mass campaigns which is not necessarily the case. This area should be flagged for in-country discussions.

4. Ensure appropriate quantification for SBD and other channels (one size does not fit all).

Some of the respondents did not seem to understand that correct quantification of the number of classes/pupils is necessary to reach target coverage of nets. The use of the NetCalc tool or a similar tool must be promoted to quantify on an annual basis the number of nets required to reach and maintain the targeted access.

5. Rethink SBD and how to reach those who are ineligible for SBD.

Respondents raised concerns about how householders (e.g., the elderly, those with no children of school age, or those lacking resources to send their children to school) would get nets. Although intra-community distribution of nets is recommended, there is scant evidence about whether this occurs in practice.

6. Review the eligibility of teachers to receive a net.

Informants raised a concern as to whether the teachers of the classes involved in the SBDs should also receive nets during the distribution. Teachers issue the nets and do the paperwork for this, as well as carrying out pre and post SBC activities and most feel they should be eligible for a net. If teachers were included, this would increase the number of nets needed by about 4%. This decision would need to be made on a country-by-country basis.

7. Use experts from scaled-up countries to provide technical assistance to pilot and interested countries.

Many pilot informants said that they would appreciate more assistance from scaled-up countries. Some had used materials from Ghana. Although many are aware of the continuousdistribution.org website, use is rather sporadic and should be promoted through every possible NMP touchpoint (e.g., when CDWGs or suchlike bodies are set up). New ways of promoting the CD agenda and tools should be explored, such as NMP/MOE study tours to the up-scaled countries.

[1] Annual Distribution of Insecticide treated nets to school children and other key populations to maintain higher ITN access than with mass campaigns; a modeling study for mainland Tanzania: Koenker et al. Malaria Journal (2022) 21:246.

ANNEX A: KEY COUNTRY QUOTES

Table A1: Key Quotes from Country Set A

Theme	Subtheme	Quote	Quote ID
General Views	Successes/ Beliefs	The school setting is a very good setting for us actually – it promotes the use of the net, and once you educate children, they know the need for us to sleep in the net when they go home. They actually try and convince or explain to their parents who do not even understand or know the reason why the school sent out the nets (Participant 25A).	#1
		So it's a channel that can assure assets and equity and inequity, then you look at costs and the fact that it is comparatively not too expensive to roll out next through the school system (Participant 17A).	#2
	Challenges/ Limitations	People move in, day in day out when they relocate the need to get their children into schools. So we and, and that affects the data, the accuracy of our data (Participant 26A).	#3
		And then we have some areas which are difficult to reach. We call them hard to reach communities. In some places, they have to travel by canoe on a river for a long time. So it's we need to make special arrangements for such community meetings, to be able to work within the time frame of the distribution. So we have to, yes, we have to give them extra time (Participant 26A).	#4
		Attrition is a major issue and changing roles. So I think it's more of changing roles than attrition. Especially in the case of the key place, districts, and then circuit level, most often, each time you've had to train, when you ask how many people have been involved in school distribution, you kind of get about 50%, meaning that the others are coming in as new CISOs or new district offices. So almost every year, you would have to train (Participant 17A).	#5
		Disadvantages, with the net for example, most of the family who have older people, elderly people, and actually who are also vulnerable to malaria. Yeah, actually disadvantage about this leftover. That's one main limitation (Participant 8A).	#6
Additional Findings	Drivers of Policy of SBD Introduction	We were mainly looking at how to reach as many people as possible. With all the ITN distributions, that one main goal is to increase the number of nets in a household. And so we looked at all the various opportunities available to do that. It was easier to do health because the systems were already there (Participant 21A).	#7

		So they decided with a school-based channel a lot a bigger number or alleged number of communities have these cases. And it's the easiest. And if you teach a kid, it's easy for these kids to go and address the issue to their family. Very reliable and accessible channel to us (Participant 7A).	#8
	Feasibility/ Funding	So in all, if you if you analyze all these components, you realize that the school district, the school structure is a sustainable way of delivering ITNs. And that is why everybody more or less was like, well, this is one of the structures or channels that we need to make sure that we go with (Participant 17A).	#9
	Partnerships, Coordination and Collaboration	Success has been mainly due to the collaboration we are getting from the government. Yeah, that's with us. I think that's a major success, the collaboration between prolate and government, but again, collaboration we get from, the support we're getting from the donor and our fellow implementing partner that the key, but it's specifically the government (Participant 10A).	#10
		So along the way, we have learned that it's a collaborative effort. And we are all, when you find a good team in the districts, it works smoothly. When you find a difficult team, they really work through a lot of hardship (Participant 22A).	#11
		I mean, we have the logistics, and so many other stakeholders, we who needed to be part of the program for its successful delivery, but we engage all of them. And we all follow the strategy and the roadmap that was prepared (Participant 26A).	#12
Next Steps	Lessons Learned	I think Ghana has a situation where school teachers, the class teachers, are excluded from the nets. They are not given nets as part of the school based distribution. This has been an issue that the teachers have complained, because they are teaching the children to use the nets. And they themselves are not given nets (Participant 20A).	#13
		Because when the child is always in school, your child doesn't miss. Yeah, where the teacher also doesn't miss the children are taught. And that's why I have a challenge where the teachers are left out. So perhaps they can also be Yes, catered for at least just the teacher for the class. Yeah. And then I also encourage them to disabuse the minds of the children that is hot. Yeah, it is their sensitization that will let them embrace the whole thing. And then they should also know that it helps in poverty alleviation, because if their children are sick, the parents don't go to work. They need to take care of the children. So it's, it's a good idea, and then you need to embrace it (Participant 24A).	#14
	Recommendations	And also made sure that they the strong SBC, to support that, to continue creating awareness, that the children would get the bed net, they go to the house and then they have the net. They have some leader, whether it's mother or father or the uncle, so for them also to filter that information and understand that if they have sufficient nets in house. the issues to cover more community in order just to keep the nets in the house, so, so we did that. the findings that came out from the evaluation was very promising (Participant 11A).	#15

Table A2: Key Quotes from Country Set B

Theme	Subtheme	Quote	Quote ID
General Views	Successes/ Beliefs	And the fact that it's coming from a school, it adds that additional value with regards to okay, maybe this is really a good message, a serious message, because it's coming in from, the school and through our children. So they're, all those sorts of aspects, I think, that are very positive about the school-based distribution (Participant 2B).	#1
		But, you know, an atmosphere of limited resources and worrisome declines of bednet ownership and use in Zambia, it's not the first place we'd go to sort of rapidly restore things in terms of investing money, time effort (Participant 1B).	#2
	Challenges/ Limitations	And really how to sort of synergize how we effectively work with essentially another line ministry. Yeah, so how to help, you know, strengthen those, those linkages, and that sort of partnership between a Minister of Health and the Minister of Education (Participant 2B).	#3
		…other limitation is that the fact that this channel is actually under education, it means that you're going to involve more than just new stuff. And that becomes a bit of a complication. Not started, because these two institutions or ministries to plan differently. And so one of them has to start buying into the other for this activity to be accomplished (Participant 4B).	#4
		Mass campaigns goes for everybody… …. I guess they'll [SBD] always be more of a niche player (Participant 1B).	#5
		…we sometimes find that some of these schools are quite remote and you know, sometimes the private sector don't actually know where they are (Participant 4B).	#6
		I think we may want to look the process of quantification. Because, you know, the lead time for procurement… (Participant 4B).	#7
		…at pretty much every single office we met with questions about how we had selected those specific districts and schools. And this is because pretty much every district and school wanted to be part of it (Participant 6B).	#8
Additional Findings	Drivers of Policy of SBD Introduction	And then there's that technical discussion. And then after that technical discussion is made, there is like a position paper that is then given to essentially us who are in the in the management portfolio, that we need to escalate to our leadership and headquarters and say, Look, this is what the program feels, needs to be one of the steps that is taken forward (Participant 2B).	#9
		Again, in the education sector, stakeholders were quite keen. In fact, I know my colleagues ….They see they see it as almost like school	#10

		feedings. An incentive to send your kids to school. This is an extra plus, they were talking about maybe tying it into a book distribution (Participant 1B).	
	Feasibility/ Funding	I think one other aspect is, it should also be strong on the aspects that we're building on existing systems and not necessarily reinventing the wheel and bringing totally new things. But, yeah, I think those are important considerations. That are the leadership wants to, to really understand fully before they can say, Okay, this is this is the best way forward, let's chug along and see how we can put some of these interventions to scale (Participant 2B).	#11
		…because of the Ghana experience, I certainly came to Zambia, positively inclined, interested in school based (Participant 1B).	#12
		Basically, there is no seriousness put into the mass distribution campaign. So the quality of the campaign is really, really bad. The implementation is done by Plan International, but they don't use the government structure. So they, they hire service providers, men who have a very bad track record of implementing. So it's like a sad duty the UFC have to reach, they don't care about the outcome of the campaign. So it has been a big challenge for Liberia. So when we sat, I said, you know, we can't put up with this. We need an additional channel to distribute nets, we know that there's distribution through ANC, and institutional delivery is going on very well. Almost 80% of the remaining what emphasis fuzzy edge get in it and also during delivery. So when we said we need to open up another channel, I didn't have any concept paper, we didn't have any strategy. So we looked around, actually Ghana sent us some of their attachments. And because we're eager to start, we just evoked a concept based on the concept then we started implementation (Participant 13B).	#13
	Partnerships, Coordination and Collaboration	It's not something that's, that's been getting planned for, I think it's something that's been undertaken on an ad hoc basis. So the country doesn't plan for it in the same way. For instance, they plan for routine distribution and mass campaigns is just something they think about when they happen for us to have excess nets coming out of the campaign (Participant 6B).	#14
		Which is one of the things I'm trying to interest in our colleagues that going forward. PMI needs to invest. Also, in the mass campaign, we can say this support the mass distribution campaign in two or three counties, I think it will make a difference (Participant 13B).	#15
Next Steps	Lessons Learned	So school-based distribution. I think it's a good distribution channel. If you do scale up. You can only appreciate the benefits if you scale up not the way we've been doing it in country X" (Participant 3B).	#16
	Recommend-ations	As we do catch up, then I think, like I say, there'll be opportunity to look at the continuous distribution channels, if they get to be functioning very well. Who knows one of these days you could talk	#17

		about phasing out? But that's not really kind of the discussion here much in Zambia (Participant 1B).	

Table A3: Key Quotes from Country C

Theme	Subtheme	Quote	Quote ID
General Views	Successes/ Beliefs	The goal of continuous distribution is to be able to improve universal coverage (Participant 27C).	#1
		It should be taken into account that after the campaign, there may be clear loss...[continuous distribution] is precisely to settle this gap and allow the vulnerable target, whether children or pregnant women, to always be protected (Participant 29C).	#2
	Challenges/ Limitations	The routine distribution to pregnant women and children is experiencing difficulties, it is mainly related to the acquisition and all that is logistical to be able to make available to these populations the mosquito net (Participant 27C).	#3
		At the moment, the school distribution has not yet been adopted, but it is provided for in the current strategic plan…the problem is that for the moment, we do not yet have enough mosquito nets to cover this population [school children]...we preferred to start directly with the infant. And later, we will extend to school structures (Participant 30C).	#4
Additional Findings	Drivers of Policy of SBD Introduction	From the moment the WHO opts for such a strategy [school based distribution]…all malaria-fighting countries included this strategy in their strategic plans (Participant 29C).	#5
	Feasibility/ Funding	If we have not yet been able to make mosquito nets available to schools, it is really not because we do not have the will to implement this policy. This is just because we do not have the funding to acquire these nets at and see the availability at the level of all school structures and educational institutions (Participant 30C).	#6
		We had to go sequentially to be able to address all the bottlenecks…that came out of this strategy [ANC distribution] before the hope of enlisting other strategies (Participant 29C).	#7
	Partnerships, Coordination and Collaboration	Stakeholders like the Ministry of Education, like the Prime Ministry or like the Ministry of Health, the directors of the Ministries of Health or the partners, they need the evidence to be able to get involved (Participant 27C).	#8
		We have a health system that has had for several years to build a good relationship with the community and get to involve it every time (Participant 28C).	#9
Next Steps	Recommendations	Pilot studies can make it possible to collect enough elements to be able to judge the relevance of scaling up this strategy. So why not try out a pilot study in a health district? Take a few schools. Trying to conduct this routine distribution there. See how it goes and can be scaled (Participant 27C).	#10

Table A4: Key Quotes from Global Experts

Theme	Subtheme	Quote	Quote ID
General Views	Successes/ Beliefs	For the benefits, I think that, in my view, it is the only channel beyond mass distribution that puts out quite significant quantities of nets each year to help maintain access, or improve access as required. So, I think the countries that have used it should be able to show some good access once the school distribution channel has been implemented (Participant 16G).	#1
		And by focusing on school children, who often can be agents of change within their families, you know, it provides an opportunity to reach families with children. Obviously, that net doesn't necessarily get to that particular child, but the intent is to increase the number of nets within a given household. So the advantages are that it's a cohort of kids that can be reached at a known location during a known time. There's infrastructure there, when the teachers are engaged, and helping to facilitate the activity or implement themselves. There's registration, school registration, so there's a somewhat at least baseline understanding of the quantity of children and therefore households that could be reached via the Channel. And, you know, there's a regular school year, so there's a cadence that can be adhered to in terms of looking at the frequency. And depending on the number of nets that the program wants to put out. It can be flexible and adjusted by how many classes receive net depending on the target levels that the country is aiming for, for its coverage. So I think those are the main advantages (Participant 14G).	#2
		The other thing is, ostensibly, it would decrease school absenteeism, if people are children are protected from malaria and able to be attending and have energy for attending school. So that's another advantage (Participant 15G).	#3
	Challenges/ Limitations	And I do think there are some countries whereby continuous channels are not feasible, and that, you know, campaigns may be the most appropriate like, Sudan, you know, campaigns are very challenging (Participant 15G).	#4
		For the disadvantage, I think the most important bit is that households are not necessarily targeted, and children taking nets home to their households. Now, some households may need more nets than other households. And these may not be the ones that will have children who will be given nets, as you may know, in Ghana, and also in Tanzania, classes are selected. So it's not all classes that receiving that, and therefore it may not necessarily target households that will be wanting to than others. Having said that, I don't think that that advantage will be significant, though, because we're hoping that in communities, there may be an opportunity to share nets, if needed between or amongst households (Participant 15G).	#5

		I think disadvantages are, it depends on a country's enrollment rates. So I think there's definitely countries in which school based may not be appropriate, depending on how many you know, kids actually go to school. And for some ministries of education, or schools, that may be an overburdening another activity, if they're already stretched, then trying to make sure kids learn. I mean, it's usually just one day or so or a couple of days, but it still requires a lot of planning and effort on the part of teachers and other others participating in it. So just being cognizant of how that lines up. These are these school activities. Oh, I forgot. So disadvantages, it's only some countries that may not be appropriate furthermore there's equity issues, especially in countries where they're at school fees, that there's a sort of pre-selected cohort of those who are attending school to be getting the nets. Furthermore, you know, households that don't have children would not be reached by the children by this channel (Participant 15G).	#6
		We've done a number of assessments of the commercial sector of nets. And it's clear that you get some nets going from the ANC EPI and school there. So free nets are coming into that market. So if you think that all you need to do is just carry nets and take them to a point and get them given to children, it wouldn't necessarily work (Participant 16G).	#7
Additional Findings	Drivers of Policy of SBD Introduction	A number of things were considered… from community distribution, to distribution in churches, I can think of a number of other approaches that way. However, everybody thought that schools were a very good conduit for getting nets to households. Also, most importantly, not only then it's about information on malaria prevention, to households. So this was then thought through, and we started, conceptualizing how that would happen. It was all agreed that it's going to look like a mini mass campaign. And we first piloted it in Nigeria (Participant 16G).	#8
		So there needs to be buy in and appreciation of the advantages of the activity that is not just, you know, creating more work for teachers, right. So they have to really embrace how they, how this could help their students help them basically teach more attentive students who are absent less frequently, how they can be engaged. And I think it I think there was an enabling environment in general to that (Participant 15G).	#9
		Okay, so the question is, why has this not been taken up? Okay. Yes. So, I think that one, the presence of a project that will advocate for this as a channel is important. So I'm going to address this because you see, under networks…And then VectorWorks, Ghana, Tanzania, and Nigeria had country officers. Okay, compared to the other countries, including Zimbabwe, Mozambique, and maybe Madagascar, who requested for short term technical assistance (Participant 16G).	#10

		I would say, having a project actively involved, I think at the beginning, you know, meeting everyone and thinking through technically what would be needed, I think having the data to be understanding, like how to quantify the nets. And the timelines needed (Participant 15G).	#11
	Feasibility Funding	So I think that a lot of this depends on individuals who have access to resources, and are willing to, you know, either try something out or believe that it's going to work or believe that it's going to be beneficial in some way. And, and to make those scale ups work, that things happen. I mean, now we're at the point in 2022, where Global Fund has just started doing their own school-based distributions in the Global Fund funded provinces (Participant 16G).	#12
		So, it is one thing, being able to convince the country programs, country malaria programs, to take this on as a channel. And then the second one is to have the donor who is giving you the funding, ready to do this (Participant 14G).	#13
		When they have put restrictions and limitations, so I hope that the donors will stand up because they've left the fight to implementing partners at this point in time (Participant 16G).	#14
		Well, I mean, it depends how much evidence really you think you need, like, extra nets aren't gonna hurt anybody? No. And everybody knew in Ghana that they needed more nets (Participant 14G).	#15
		But for some countries, there are kind of perverse incentives to campaigns. Because there are a lot of resources that come into our country surrounding the campaign. And so now, not to say that, you know, programs don't have the best interest of their populations at heart and want to take the optimal manners to ensure sustained production (Participant 15G).	#16
		I think as we've gone around and done, you know, continuous distribution assessments, there are definitely people within PMI, who are more pro CD and trying to make things happen. And there's definitely others who either because they're generally skeptical, or because they know that their budget can't make it happen, or just, you know, not as gung ho about it (Participant 14G).	#17
	Partnerships, Coordination and Collaboration	And there were different meetings to present that and to convince the gatekeepers in the ministry to accept that as part of the plan (Participant 16G).	#18
		You know, with multiple different health campaigns going on, in that same country, you know, there's a lot and so I think the intent is, as always, like do no harm, be supportive….But it's like for PMI it's not for us to dictate, you know, like, we're just, we support countries, we support National Malaria program strategies (Participant 15G).	#19

		I talked about the donors and the country program being interested or being convinced to take this approach. So it is one, being able to convince the country programs, country malaria programs, to take this on as a channel. And then the second one is to have the donor who is giving you the funding, ready to do this (Participant 16G).	#20
		Doing this each year, as compared to doing a mass distribution in three years. What is the unit cost of our net through schools. So that analysis also was done under the network's project, if I remember, right, and it goes to show- when to show that the channels were comparable, that is mass distribution, and school distribution. And that considering the fact that you don't have to put so many nets out there to school distribution, and the operations are not as endless, laborious, as mass distribution, because you are using existing channels, we were able to sell this to Ghana (Participant 16G).	#21
		So, we have to kind of present the pros and the cons and I think the country then, you know, takes that with the individuals and then mix of people and personalities that are in the country at the time to move policy forward or to, you know, show that like, what happened in many other countries (Participant 14G).	#22
		If we see that nets aren't lasting as long as expected be at physical or chemical attributes, then it does make sense to have a more continuous input of products, nets into communities (Participant 15G).	#23
Next Steps	Lessons Learned	However, I think the implementation, at least the one that I was involved in, could have been done better. The other thing is that countries check the channel, and they decide to tweak it the way they want it to go. Sometimes it's for the better other times they lose sight of the processes that are required to make sure that things are working well. Now, it's, it's a channel that if you do not monitor effectively, you can easily loose nets, in transit or along the way (Participant 16G).	#24
		I think it's, it's interesting, because Ghana stop school-based distribution during mass campaign years, so right, so I don't think there's the intent to fully transition from campaigns and have the school channel as a replacement, which was more of the vision, you know, in some of the regions in Tanzania. This was, you know, more on complementing facility based health facility based distribution, and really keeping higher levels of nets going out between campaigns. So the intent, I think, has been a little different than Tanzania, for example (Participant 15G).	#25
		And that is why one of our proposals and networks and VectorWorks was to take it to the people. So we had all of that [information from cd.org) However, we went from country to country sitting people down (Participant 16G).	#26

	Recommendations	So there needs to be buy in and appreciation of the advantages of the activity that is not just, you know, creating more work for teachers, right. So they have to really embrace how they, how this could help their students help them basically teach more attentive students who are absent less frequently, how they can be engaged. And I think it I think there was an enabling environment in general to that (Participant 15G).	#27

ANNEX B:
KEY INFORMANT INTERVIEW OUTLINES

Country Set A Interview guide: SBD/CBD implemented at scale

General introductory
Could you tell me your current role and organization?

How long have you been working in this role? With this organization?

What are the malaria control and/or elimination priorities for your organization?

A1: Technical evidence SBD/CBD
In general, what are your views on SBD/CBD

What do you feel are the benefits of SBD/CBD

What do you feel are the limitations of SBD/CBD

When was SBD/CBD introduced into this country's National Strategic Plan for Malaria?
- Is it included in strategies, guidelines and funding requests – ask for the details

Despite SBD/CBD having been a WHO policy since 2010 there are many African countries that have not yet adopted it, what were the reasons that SBD/CBD was adopted here?
- What were the main drivers of the policy? What was convincing for decision-makers?
- Were there particular actors who supported the policy? And were there those who didn't?

Was there particular evidence that supported the introduction of SBD/CBD into policy here?
- Were there particular kinds of studies that influenced your decision-making?
  - Probe if necessary: design, size, where etc.

A2: Structure, processes, and actors
Can you tell me about the decision-making process by which the SBD/CBD policy was developed in this country?
- Which institutions were involved?
- Which groups and individuals were involved?
  - What institutions/groups/individuals had a role in evidence generation?
  - What institutions/groups/individuals had a role in providing technical advice?
  - What institutions/groups/individuals had a consultative role?
  - Who endorsed the policy?

- Can you please talk me through the key events/stages in the policy development process?
- What were the strengths and limitations of this process?
- What factors or activities do you feel helped this process?
- What factors or activities were missing that would help this process?

Would you say that SBD/CBD was adopted through a legitimate process? For what reason?

- What steps or factors were needed for you to feel that it was legitimate?

Which types of evidence supported SBD/CBD policy adoption?

Was there any evidence that was against the introduction of SBD/CBD into policy in this country? How were the issues that this evidence raised overcome?

A3: Alternative interventions

What do you think are the most important interventions to prevent malaria in children and infants?

- What are your reasons for this?

Is SBD/CBD synergistic with these

What would be the best mix of interventions?

- What are your reasons for this?
- Does this vary across the country? Where and why?

A4: Political, economic, and other contextual influences

Was there much support for the integration of SBD/CBD into this country's National Malaria Strategic Plan?

Which organizations supported SBD/CBD politically, practically, and financially?

- What do you think were their reasons?

Which organizations opposed SBD/CBD?

- What were their reasons?

A5: Decision-making tool

Do you think that providing evidence on [prompt each of the list below] of SBD/CBD will convince national decision-makers in other countries to implement this intervention?

- the impact
- the operational feasibility
- the efficacy
- the effectiveness
- the cost-effectiveness

- Which amongst these factors would be most convincing?
  Protecting children
- What is missing from this list?

- Who should see this evidence and who should it be presented to/packaged for?
- In what format would the relevant evidence be most useful to these decision-makers?
    - [clarify/prompt if necessary: paper / interactive offline / interactive online; numbers / tables / maps / figures; anything else?]

Additional questions
Is there anything else you think is important for us to know? Who else to speak to?
Do you have any questions for us?

Challenges/lesson learned

Global

Pilots

Country Set B Interview Guide: SBD/CBD not implemented at scale but has been piloted

General introduction

Could you tell me your current role and organization?

How long have you been working in this role? With this organization?

What are the malaria control and/or elimination priorities for your organization?

B1: Technical evidence on SBD/CBD

In general, what are your views on SBD/CBD?

What do you feel are the benefits of SBD/CBD?

What do you feel are the limitations of SBD/CBD?

What is the current status of SBD/CBD policy in this country?
(Pilot done)

Given that SBD/CBD has been a PMI/WHO policy since the early 2000's what are the reasons that scale-up has not been adopted here?
- What are the barriers? Have these changed over time?

What evidence would you need to see to convince you that SBD/CBD should be a scaled up here?
- Is there anything about the studies that would influence your decision-making?
    - Probe if necessary: design, size, where etc.

How does the range of malaria control tools available or currently deployed within the country impact this decision-making?

Is your thinking on what is needed to adopt SBD/CBD shared by your colleagues? How widely is this view held?

- What is the reason that you think this?

Who are the decision-makers who would need to agree to adopt SBD/CBD?

- What would convince them?

B2: Structure, processes, and actors

Can you tell me about the decision-making process that would be used for scaling up SBD/CBD implementation in this country and what are the key events/stages in this process?

- Which institutions would be involved?
- Which groups and individuals would be involved?
  - What institutions/groups/individuals do or would have a role in evidence generation
  - What institutions/groups/individuals have a role or would have a role in providing technical advice?
  - What institutions/groups/individuals have or would have a consultative role
- What would be the process of SBD/CBD policy development?
- What are the strengths and limitations of this process?
- What factors or activities do you feel would help this process?

B3: Political, economic, and other contextual influences

Check that SBD/CBD is in this country's National Malaria Strategic Plan?

Which organizations do you think would support SBD/CBD politically, practically, and financially?

- What do you think would be or are their reasons?

Which organizations do you think would oppose SBD/CBD?

- What do you think would be their reasons for doing this?

B4: Decision-making tool

Do you think that providing evidence on [prompt each of the list below] of SBD/CBD will convince national decision-makers to scale-up this intervention?

- the impact
- the operational feasibility
- the efficacy
- the effectiveness
- the cost-effectiveness
  - Which amongst these factors would be most convincing?
  - What is missing from this list?
  - Who should see this evidence and who should it be presented to/packaged for?
  - In what format would the relevant evidence be most useful to these decision-makers?

Additional questions

Is there anything else you think is important for us to know?

Who else would be good to talk to about this?

Do you have any questions for us?

Country C Interview Guide: Countries who have not piloted SBD/CD but have shown interest

General introduction

Could you tell me your current role and organization?

How long have you been working in this role? With this organization?

What are the malaria control and/or elimination priorities for your organisation?

C1: Technical evidence on SBD/CBD

In general, what are your views on SBD/CBD?

What do you feel are the benefits of SBD/CBD?

What do you feel are the limitations of SBD/CBD?

What is the current status of SBD/CBD policy in this country?

Given that SBD/CBD has been a PMI/WHO policy since the early 2000's what are the reasons that SBD/CBD has not been adopted here?

- What are the barriers? Have these changed over time?

What evidence would you need to see to convince you that SBD/CBD should be a policy here?

- Is there anything about the studies that would influence your decision-making?
  - Probe if necessary: design, size, where etc.

How does the range of malaria control tools available or currently deployed within the country impact this decision-making?

Is your thinking on what is needed to adopt SBD/CBD shared by your colleagues? How widely is this view held?

- What is the reason that you think this?

Who are the decision-makers who would need to agree to adopt SBD/CBD?

- What would convince them?

C2: Structure, processes, and actors

Can you tell me about the decision-making process that would be used for developing SBD/CBD implementation in this country and what are the key events/stages in this process?

- Which institutions would be involved?

- Which groups and individuals would be involved?
    - What institutions/groups/individuals do or would have a role in evidence generation
    - What institutions/groups/individuals have a role or would have a role in providing technical advice?
    - What institutions/groups/individuals have or would have a consultative role
- What would be the process of SBD/CBD policy development?
- What are the strengths and limitations of this process?
- What factors or activities do you feel would help this process?

C3: Political, economic, and other contextual influences
Do you think that there is support for the integration of SBD/CBD into this country's National Malaria Strategic Plan?

Which organizations do you think would support SBD/CBD politically, practically, and financially?
- What do you think would be or are their reasons?

Which organizations do you think would oppose SBD/CBD?
- What do you think would be their reasons for doing this?

What potential problems, if any, do you anticipate in the division of responsibility for SBD/CBD delivery between the NMP and MOE or MOF, Community etc.?

C4: Decision-making tool
Do you think that providing evidence on [prompt each of the list below] of SBD/CBD will convince national decision-makers to implement this intervention?

- the impact
- the operational feasibility
- the efficacy
- the effectiveness
- the cost-effectiveness

- Which amongst these factors would be most convincing?
- What is missing from this list?
- Who should see this evidence and who should it be presented to/packaged for?
- In what format would the relevant evidence be most useful to these decision-makers?

Additional questions
Is there anything else you think is important for us to know?

Who else would be good to talk to about this?

Do you have any questions for us?

ANNEX C. LITERATURE REVIEW DOCUMENTS

When "Good Evidence" Is Not Enough: A Case of Global Malaria Policy Development. D'Souza, B. J., Parkhurst, J. O., *Global Challenges* 2018, 2, 1700077. https://doi.org/10.1002/gch2.201700077

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