REPORT ON THE REGIONAL MEETING ON GENERATING PRACTICAL EXPERIENCES AND EVIDENCE ON SCALING UP INDOOR RESIDUAL SPRAYING IN UGANDA

December 2017

Summary of evidence and experiences

Indoor residual Spraying (IRS) implementation in northern Uganda from 2006-2014 reduced malaria morbidity and mortality by over 40% of the OPD attendance.

IRS is the most effective intervention of malaria control if applied consistently.

The first phase (led by Abt Associates) which was a project mode of IRS implementation was more expensive compared to the integrated district led implementation.

However, there was quality and high impact implementation of IRS (timeliness, facilitation, training, and spraying due to available resources by Abt Associates.

Occupation safety of the IRS team was adequately addressed through provision of Personal Protective Equipment (PPE)and the spray teams were adhering to the safety guidelines.

Environmental compliance was being observed by both the spray team in the field, at the storage facilities and wash points during both phases of implementation.

The capacity of local government staff to implement quality IRS was effectively built by Abt associates as reflected by the successes of the district led phase.

District leaders were involved in mass sensitisation on the benefits of IRS which undermined myths and misconceptions.

Investments in community sensitisation and involvement gradually reduced misconceptions in the communities.

The districts and communities were not involved adequately in the planning and implementation of IRS during the Abt phase. There was no sharing of implementation budget and operational plans with the districts and this compromised ownership of the intervention by the districts and communities

Introduction

Makerere University School of Public Health (MakSPH) is leading the implementation of European Union (EU) supported project titled "Supporting Policy Engagement for Evidence based Decision" (SPEED) on Universal Health Coverage (UHC) in Uganda with the aim of improving policy analysis and influence in Uganda. This initiative (SPEED) project is to broadly address UHC and systems resilience in Uganda with partner institutions that are specialized in health policy and systems research, economic policy analyses, social science research, national planning, and advocacy for the right to health in Uganda.

The key advocacy streams from the SPEED project include health financing for UHC, advocacy for Indoor Residual Spraying (IRS) in Uganda and policy implementation Barometer. As part of SPEED project, Uganda National Health Consumers' Organization (UNHCO) is generating evidence to inform policy advocacy for IRS to eliminate malaria in Uganda. In a bid to generate evidence and experiences on indoor residual spraying, SPEED project convened a regional meeting on 9th November 2017 at Church Hill Hotel to further inform the issues policy paper on IRS to enable advocacy for the proposed nationwide IRS application for elimination of malaria in Uganda.

Justification

Uganda has one of the highest malaria incidences in the world, with a rate of 478 cases per 1000 population per year[1] (MoH Uganda 2015). Uganda's ambition to eliminate malaria will not be realized if no investment or new direction of thinking is given to increase the effectiveness of the current interventions. Uganda has adopted a multipronged approach to control malaria[2] Current interventions focus on protecting the human beings against mosquito bites using Long Lasting Insecticide Treated Nets (LLITNs), targeting the parasite using anti-malarial drugs, and killing the vector using chemicals as well as communication for behavior change. Vector control is key strategy through which malaria can be drastically reduced. Indoor residual spraying (IRS) is known to reduce malaria transmission[3]. In northern Uganda, a high endemic area, IRS has been implemented since 2006 with support from United States Agency for International Development (USAID)/President's Malaria Initiative (PMI).The IRS intervention strategies for malaria control initially focused on malaria prone areas in the southwest and later concentrated on the highly endemic areas in northern Uganda. Since 2009, IRS was scaled up to cover 10 high-malaria-burden districts in the Mid-North: Apac, Kole, Gulu, Amuru, Nwoya, Pader, Agago, Kitgum, Oyam and Lamwo. In 2014, there was an abrupt halt of the program which led to a malaria epidemic in the region[4]. Since then, districts in collaboration with MOH, malaria consortium and other partners initiated district led IRS programs.

[1] Ministry of Health Report 2015
[2] National Malaria control strategy 2015/2016-2019/2020
[3] Annual health sector performance report 2017/2018
[4] Ministry of Health Report 2015

Meeting Objectives

1. To generate evidence and share experience on Indoor Residual Spraying (IRS) application and inform the issue paper for advocacy.

2. To inform policy engagements at national level for scale up of indoor residual spraying in Uganda.

Methodology

The regional meeting drew 43 participants from the mid north sub region who have already experienced the application of IRS. These included Political leaders, technical heads in the health sectors and other district departments.

The meeting adopted the following methods:

1. **Group discussions and presentations**: members were randomly distributed into three groups. Discussions focused on what worked well and or did not work during the application of IRS. Suggestions on what needed to be done differently were elicited. Other issues included experiences on involvement of the communities and how community issues were addressed; and the role of local governments.
2. Plenary discussions. Every member was given an opportunity to reflect and react on the group presentations.
3. Two presentations were made:
    a. Paper presentation comparing experiences with both the Abt associates led (project) phase and District led phase was made by Assistant DHO of Kole District. The paper covered the experiences of the planning processes, application methods, the safety of the chemicals used to humans and environments, costs, successes, challenges and recommendations for scale up in Uganda using the locally available resources.
    b. A presentation from Agago district on the changes in malaria morbidity and mortality over time during IRS implementation
4. All these proceedings were video recorded and documented for national level use and evidence. Testimonial voices are being packaged into video formats for sharing and use during future advocacy engagements. The key messages were synthesized along key themes.

Highlights of the Meeting Deliberations

The meeting focused on six major practical areas for evidence on IRS; a) effectiveness of the intervention; misconceptions, b) myths and awareness programme; c) the current implementation models and cost drivers; d) training and capacity building; e) district innovations and IRS programme; and e) safety and quality control.

a) Effectiveness of the intervention

There was generally reduced morbidity and mortality due to malaria among the children and the adults. The population of mosquitoes went down and led to reduction in the malaria burden. In simple terms, there was a drastic reduction in malaria case load when IRS was used. The participant's views were backed by evidence from HMIS records Agago district was able to reduce malaria cases to the World Health Organisation (WHO) acceptable levels of 17% – 19% as shown in the graph by Kalongo Hospital on malaria trends for OPD and IPD during and after IRS in Agago District. Patient work load and bed occupancy in hospitals improved with fewer patients reporting with malaria. Costs in terms of fiannces and time spent on looking after sick patienst also reduced greatly. Participants gave testimony that when IRS was started in the region, children were no longer missing school due to ill-health from malaria and community members became more productive. Other inferred benefits of malaria reduction during the IRS implementation were reduced government expenditure on treating malaria, reduced sexual and gender-based violence as there was less disharmony at home.

> "Our children were missing school because of malaria. It [malaria] a driver for poverty too; productivity was very low and savings were being used for treatment of malaria. People were very weak because of malaria" Chairman, Agago district local government.

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
OPD	14,260	14,941	10,730	4,924	8,739	7,658	2,361	3,609	1,908	957	6,095	6,694
IPD	5,537	6,772	5,837	5,215	9,229	3,543	2,361	2,875	1,680	1,665	9,664	7,950

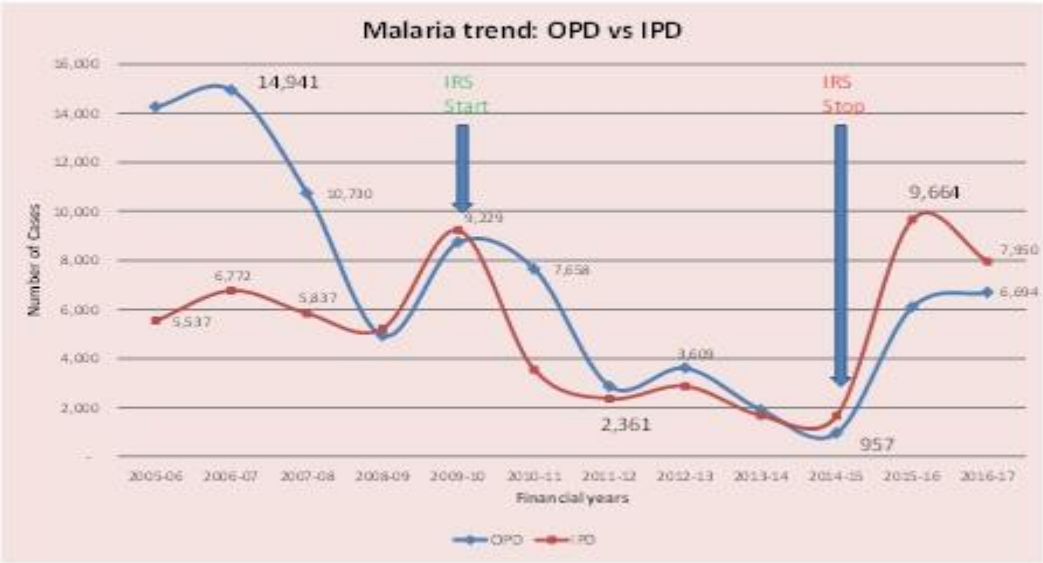

Figure 1: Graph showing trends in OPD and IP Malaria cases at Kalongo Hospital, Agago district

From experience, spraying was considered more effective than bed nets and treatment for malaria is expensive. The attitude of community members towards nets was reported negative and counterproductive to the use of the nets.

b) Misconceptions, Myths and Awareness Programme

The participants noted that several myths and misconceptions expressed concerns by community members. These were intense during the first phase but gradually reduced as people experienced the benefits above. The common (mis)perceptions were i) chemicals used kill animals and poultry and cause blindness and fever and ii) that the chemicals did not kill mosquitoes. Some community members reportedly claimed they continued to experience mosquito bites and fall sick of malaria amidst IRS intervention. Other communities complained of reduced ability to perform conjugal duties-"reduced manpower". Some section of society was reportedly against IRS including religious sections, organic farmers and urban dwellers who felt that the sprayers wanted to spy of them. concerns included the fact that delayed exposure to plasmodium would lead to as lowered body immunity due to prolonged use of IRS.

There was an aggressive campaign employed to boost awareness and buy in from the communities. The district political and technical leadership participated in talk shows on radio, community meetings and other fora. The use of local community members (VHTS) to spray undermined the community resistance.

"Towards the people were calling us to spray their houses; people have seen the gains because the burden of malaria went down. Communities were following the sprayers to go and spray their houses". **District Technical officer**

The project officer guiding group work during the regional meeting

Also the nature of pump used and cost implications- the Hudson pump that is used for IRS spraying is strong and metallic and takes care of leakages and so is the expense involved. The garden pumps do not take care of leakages though can effectively be used for IRS. Malaria consortium is already procuring the pumps and putting them in the districts and irrespective of whether district is spraying or not. Government has the responsibility to procure the equipment and other supplies and store them in the district.

c) Current implementation models and cost drivers;

Two models of IRS implementation were reported. The first was the vertical project based model implemented by Abt Associates (2009-2014). The second phase was district led phase that leveraged the capacity, good will of the communities, existing infrastructure from the Abt Project to implement IRS. The two phases were reported in terms of various aspects such as capacity building, participatory approach, logistics management and costs as indicated in the table below. In summary the district led model was considered much cheaper and more sustainable.

The cost drivers during the Abt phase included: a) use of teams from Kampala to do support supervision of the sprayers. The teams required field facilitation which increased the management cost and b) high cost equipment like spraying gadgets imported from the US. The district used the existing VHT networks and integration to reduce the costs.

There were so many staff employed by Abt Associates yet for the district-led phase we had staff already in place which cuts the cost. Training people who are already in-service is a far more cost-effective approach. For instance, some districts already have airtime paid for on radio stations which they use for mobilising communities for different development issues -DHE-Oyam

Table 1: Comparing Project led and District led phases of IRS

	Area of comparision	Project led IRS	District led IRS
1	Capacity building for IRS implementation	Highly built among the operators but limited awareness by the communities about IRS.	Highly built by the project mode
2	Participatory planning and community/leaders involvement	Centralised planning and communicated to the district implementers	Decentralised planning and involves all the district sectors from the start.
3	Logistic management	Costs including initial purchase of IRS pumps, contracting firms to manage IRS wastes, transporting insecticides to the field sites, loading/ off loading and storage was extremely/exorbitantly high	Some of the equipment already exist and therefore less cost
4	Data management	Equipped the biostatisticians with relevant information but less with	Relevant data is captured by the village health team members who are involved

		on time data tools. The spray operators were not so knowledge in data management which affected the accuracy of information submitted.	in the IRS activities and submit to the district biostatisticians
5	Coverage of IRS	Coverage was so accurate due to the high expectations by the field coordinators from the spray operators.	Universal because its planned by the district and the VHTs as implementers of IRS
6	Pilferages	Pilferage persisted, and there were cases of insecticide poisoning in both humans and animals which was a public health and a social concern. One of the drivers of high costs is the habit of community based health workers providing falsified data because they were using some of the chemicals to kill rats and other insects in their homes.	Districts would measure and control the pilferages of chemicals.
7	Occupational safety and environmental compliance	Was effective but expensively executed	There is need to recycle the containers of pesticides and reduce on disposal complications
8	Supervision and coordination of IRS activities	Highly effective because of the availability of resources.	Less effective because the usual business and limited resources
9	IRS personnel management	Districts felt some of the procurement and supply chain system could have been integrated into the National Medical Stores schedule.	At the district, we can pay a VHT UGX 5,000 allowance and they can do the work not paying UGX 11,000-12,000 for IRS by Abt associates Once districts are allowed to plan, they feel part of the process and the project..

d) Training and capacity building

Districts have accumulated the technical capacity to conduct IRS during to previous experiences during the Abt Associates-led phase. Gradually districts using data from other phases; we were able to engage households and we sprayed more houses. The training that was provided to the district staff and other personnel during the first two phases of implementation of IRS addressed some of the sustainability concerns.

It was reported that the districts have the will and capacity needed for continued implementation although a few pieces of equipment would need replacement.

For the Abt Associates program, supervision was conducted very well and the supervision teams were well paid compared to the implementation under district local government. More work including data collection

was formerly collected by individuals who had their own means of transport (riding bikes) and yet paid very small allowances. The district recommended integration of this supervision into the routine supervision and optimize the available resources. The Ministry of Health should improve planning systems, e.g. monitoring teams were recruited from far - they are supposed to supervise which creates a gap and challenge in data quality.

e) Safety and quality control

There was reduced pilferage during the 2nd phase compared to the first one because the supervisors had acquired skills. Environmental compliance was being observed by the spray teams in the field, at the store and wash points. Occupation safety of the IRS team was adequately addressed through provision of personal protective equipment (PPE) to the spray teams. However, the equipment were very expensive for the districts to afford. There is need for:

i) Critical consideration of the external environment (outside the house) where people in rural settings spend a lot of their time – the policy on environmental health should be emphasized alongside IRS use.
ii) People should be held responsible and punished for poor environmental health conditions in their surroundings; we should aim at going to this level of managing malaria.

Communities in Apac complained of developing allergies. As a result, some beneficiaries seem to prefer insecticide-treated nets to IRS despite the lack of materials where to hang the ITNs.

The uncertainty over the long term effects of IRS kept coming up in all the groups and participants reported that it is a highly-running stimulating discussion in the public spaces and some strategies need to be designed to either conduct studies on it or if evidence already exists, educate the public on the matter. Participants complained that if this issue is improperly handled, and it ends up in the food chain it can lead to health complications.

The executive director –UNHCO giving concluding remarks.

General gaps identified during the regional meetin

Conclusion and way forward

In conclusion, the Executive Director of UNHCO commended the commitment by the participants who provided rich information. The information gathered will be packaged and will directly go to the policymakers responsible for this issue. The meeting showed that IRS is doable by the district in a cost-effective manner .Looking at this from the perspective of the national health insurance, we do not want to pay money and it all goes into treating preventable conditions.

The chairman of Kitgum District said we have reached a point of no-return; several voices are coming up on this matter. The number of expectant mothers lost due to malaria is a national disaster that IRS can help to avert.The country has been able to eradicate guinea worm; why can't we eradicate malaria? As a country we have the Vision2040 and global targets to achieve today and we have contributed to this by sharing these experiences that can contribute to policy making .The onus is on us as leaders to contribute to this; it is not a health professionals' job only. We have seen how mosquito nets have been abused; we need many sectors on board to help manage many of these issues.He decried the donor-dependency yet people in developed countries sacrifice to give us money, we have to look inside us and determine to move without donor funding. We have to deal with corruption and misuse of funds. What is so difficult for us as Ugandans to develop to the level of some countries that are even borrowing from us like Rwanda? He asked. The district-led model

seems to be the way to go about this program, we need to embrace the gains already seen in the phases implemented for sustainability, he concluded.