Malaria control for rural areas in Uganda: localizing the interventions

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Abstract

Background. Malaria is a public health and socio-economic threat to development in most countries in Sub-Saharan Africa, and particularly in rural areas. In Uganda, a number of malaria control interventions have been adopted, most of which are part of the international Roll Back Malaria (RBM) campaign. The spread of malaria is reducing but the prevalence is still high, especially in rural areas where mostly pregnant women and children bear the brunt of the negative effects of ineffective control. It is suggested that strengthening efforts towards localizing existing and new malaria control initiatives is one of the best available options to accelerating malaria control.

Methods. Literature from within and outside Uganda is reviewed. Opinions of the author are used to reinforce the reviewed literature. In addition, existing literature is also substantiated using the author’s experience and knowledge about malaria control. The article focuses on rural Uganda although the literature reviewed and subsequent conclusions and recommendations are also applicable to other countries.

Main discussions. Malaria is still the major cause of illness in the country. Available information shows that most of the regions in the country that are predominantly rural have a high prevalence rate. Malaria is, however, reducing due to a number of factors including the adoption of the global malaria control initiatives and use of community-based approaches. The approaches, however, have been limited and faced with constraints, which could be improved through reinforcing them with localized initiatives.

Conclusions. There are a number of reasons why malaria prevalence in Uganda is still high including limited socio-economic infrastructure, long distances to health units, and huge costs of treatment, among others. However, strengthening efforts towards localization offers one of the most convenient solutions.

1 Introduction

Uganda is a landlocked developing country in East Africa. It has a projected population size of 31 million with an estimated growth rate of 3.2 percent [1]. Uganda has a very high debt burden and in 2000 qualified for enhanced Highly Indebted Poor Countries (HIPC) debt relief worth $1.3 billion USD and Paris Club debt relief worth $145 million. By 2004, the public debt was 62.2 percent of GDP, external debt was $3.8 billion and economic aid amounted to $1.4 billion [2]. Health status is poor, even by regional standards, partly as a result of poor leadership especially during the regime of President Idi Amin and due to a long period of political violence and state failure [3].

Most of the country is forested, wood or grassland savannah accounting for 70 percent of the terrain with 18 percent inland water and swamps [4]. The country has two dry seasons: December-February and June-July, with the South-western region registering the highest rainfall of 130 cm or more [5]. This environment favours the breeding of disease vectors like mosquitoes and tsetse flies, resulting into multiplication of a number of diseases like malaria, sleeping sickness, among others. According to the country’s Malaria Control Programme, in most parts, temperature and rainfall are sufficient to allow stable, year-round malaria transmission at high levels with relatively little seasonal variability. More than 90% of the nation is highly endemic especially in the Northern, South-western and Western parts of the country [6]. Uganda’s large population also has implications for malaria control because of the increasing pressure on arable and inhabitable land forcing people to move into previously uninhabitable areas. It is reported that malaria transmission is increasing in the country due to massive deforestation and cultivation of wetlands, poor environmental sanitation and other man-made breeding sites [7]. There are other diseases that threaten the health and productivity of the citizens including cancer, HIV/AIDS and tuberculosis, but malaria poses the most significant threat to the health of the population [8]. The world malaria report ranks Uganda 6th worldwide in number of malaria cases and 3rd in number of malaria deaths [9]. Out Patient Department (OPD) attendance has been increasing in most health units from 9.3 million cases in 2000 to 17.7 million cases in 2003. In each case, however, malaria accounted for almost 50 per-
Malaria remains a major socio-economic threat and has been the highest ranked cause of morbidity in Uganda in the period 2005-2009. This is despite the fact that the number of estimated confirmed cases has generally declined since 2007 [11]. The prevalence rate is reported to have decreased from 56 percent in 2006 to 52 percent in 2010 [12]. This modest decline in the number of malaria cases is encouraging although it still remains high. This greatly retards the pace of transformation especially in rural underdeveloped areas. Rural areas constitute the majority of the population in Uganda. It is reported that 85 percent of Uganda’s population is predominantly rural [13]. Whereas malaria prevalence varies by region, it can generally be said that the disease is the major cause of morbidity, and is more prevalent, in rural compared to urban areas. For instance, in 2003, 27.6% of the population in urban compared to 29.1% in rural areas fell sick of malaria and this number increased to 33.1% in urban areas compared to 41.7% in rural areas by 2005 [6]. Recent findings about distribution of diseases by region show malaria as the major type of illness and is highest in the Eastern region followed by Central, Western, Northern and lowest in Kampala - a predominantly urban area. Since most of the regions apart from Kampala are predominantly rural, it can be concluded that malaria in Uganda is more prevalent in rural areas.

The high malaria prevalence rate in rural areas strains rural people socially and economically. According to the World Malaria Report 2008, malaria remains the major public health problem in Uganda with annual estimates of 10 million cases and 43,000 deaths, of which 91% are children below 5 years of age. Every year, malaria kills 70,000 to 110,000 Ugandans and the direct cost of treatment for an episode of malaria is estimated at $1.80 in rural populations [14]. Malaria affects families mostly during the rainy season, thus interfering with farm activities. Uganda’s Ministry of Health (MoH) estimates that malaria-affected families on average can harvest only 40% of the crops harvested by healthy families. According to Alaba and Alaba [15] in the agricultural sector in rural areas, the peak of malaria transmission has been found to coincide with the peak of planting and harvest seasons when demand for labour is high. With this, vast expanses of land go uncultivated and substantial harvests are lost because workers are sick. There is evidence to suggest that a serious malaria episode can consume the hard-earned incomes of the already poor people especially those in rural areas in developing countries [8,10,15]. Malaria affects income and productivity and can also depopulate rural areas. Sick individuals face heightened probabilities of death and lower labour productivity. This pushes such people deeper into the poverty trap and this is disastrous for rural dwellers with limited social and economic protection.

In order to control malaria, a number of strategies have been adopted and strengthened by the Ugandan government. The strategies are based on the principles and aims of the global Roll Back Malaria (RBM) movement and the Abuja Declaration by African Heads of State. The policies and strategies include: Indoor Residual Spraying (IRS), first piloted in western Uganda in the late 1950’s, Insecticide Treated Nets (ITNs) adopted in 1990’s and Case management around 2002. There are other prevention and control methods in use like bush clearing, closing houses early to bar away mosquitoes, clearing stagnant water, use of aerosol sprays, coils and traditional local herbal medicine. As far as malaria treatment is concerned the country has mostly relied on chloroquine. This, however, changed due the upsurge of the disease and resistance to treatment especially with the emergence resistant Plasmodium falciparum. The government had to revise the malaria drug treatment policy three times: from chloroquine monotherapy to chloroquine and sulfadoxine pyrimethamine (CQ/SP-fansidar) in 2001 to Home Based Management of Fever Strategy (HBMF) in 2002, and in 2004 Artemisinine-based Combination Therapy (ACT) was proposed and adopted in April 2006 as the first line treatment regime [16]. These policies and measures have been passed onto lower levels with the district as the basic unit of coordination as per the decentralisation policy. The aim is to reach the most affected people at grass root levels. It should be noted that malaria control strategies in the country especially ITNs and case management have helped to check the spread of the disease. Most of these programmes have also been adopted in other countries and have helped to eliminate or drastically reduce the spread of malaria, accelerating the pace of economic development [17,18]. Use of IRS in Trinidad in 1965, Paraguay in 1968 [19] and recently in South Africa where ITNs and Dichloro-Diphenyl-Trichloroethane (DDT) was sprayed, reduced malaria cases by more than 80 percent [9]. In Vietnam between 1992 and 1997, ITNs reduced the malaria death toll by 97 percent and in some parts of Kenya, Gambia and Burkina Faso use of ITNs has proven effective against malaria [19,20]. Countries like Eritrea, Rwanda, and Zanzibar reduced the malaria burden by 50 percent or more between 2000 and 2007 [9].

These interventions have been supplemented by other strategies including the setting up of health centre IIIs at parish level and other socio-economic enhancement programmes that broadly aim at reducing poverty. Attempts
have also been made to localize malaria control especially through community-based programmes. Integrated Case Management strategy which replaced HBMF strategy and Village Health Teams (VHTs) are good examples in that direction. The VHT strategy is attracting much attention in the country and is equated to a health centre I, integrating a number of programmes including the HBMF strategy itself. VHT aims at serving people as close to their communities and households as possible. These programmes mainly target the poor from rural, remote and hard to reach areas and greatly contribute to searching for ways in which local needs are incorporated. Whereas a decline in the malaria prevalence rate has been registered, there is still a dire need to maintain and accelerate the progress towards full malaria control. The registered success needs to be reinforced amidst the weaknesses so as to realise benefits, particularly from localised-community based programmes. The peculiarities of rural areas delimited by low education levels, limited savings, unavailability and un-affordability of malaria control materials, equipment and inaccessibility of especially health infrastructure pose a formidable challenge. There are, however, other constraints. The National Development Plan identifies a weak policy legal and regulatory framework, weak malaria partnership forum and weak implementation of a comprehensive policy on malaria, diagnosis and treatment, as among the major constraints to the health sector and control of malaria. These are, however, symptoms of the problem. This paper contributes to the search for a solution to the root causes of some of the constraints to malaria control and builds a case for strengthening efforts towards localizing existing and new malaria control strategies as one of the remedies.

2 Methodology

The paper reviews existing literature to reinforce the opinions of the author. Recent surveys like the Uganda National Household and malaria indicator surveys are integrated with reports to substantiate postulations by the author. The views and opinions of the author are further reinforced with knowledge and experiences of other authors on malaria control. The paper focuses on rural Uganda however the literature reviewed and subsequent conclusions and recommendations are also applicable to other countries.

2.1 Presentation of findings

Uganda’s malaria control strategies are summarised in the National Health Policy and the Health Sector Strategic Plan (HSSP) which are the overall policy frameworks for the country’s health sector. The HSSP has undergone a number of revisions so as to cater for changing health needs of the country. In all the HSSP versions, malaria controlhas featured prominently. For instance during the HSSP I, prevention, promotion and case management interventions were employed in combination with the updated national malaria control strategic plan. The recent HSSPIII sums up the goal of malaria control in Uganda as to control and prevent malaria morbidity and mortality, as well as to minimize social effects and economic losses attributable to malaria. Specific policies and strategies for key malaria interventions are detailed in the Uganda Malaria Control Strategic Plan (2005/6-2009/10) derived from the National Malaria control policy of 2006. It is noted that the purpose of the current 2005/2010 Uganda national malaria control strategic plan is to provide a common platform and detailed description of interventions for all Roll Back Malaria (RBM) partners and sectors of society. The core intervention areas of the strategic plan are vector control through Insecticide Treated Nets (ITN) and Indoor Residual Spraying (IRS), Case Management, malaria in pregnancy, malaria epidemics and advocacy and social mobilization. These core interventions have been implemented for some time and some gains have been made as a result of the existing policy and strategic plans. For instance, about 6 million LLINs had been distributed by 2008. A number of community approaches are being implemented and these mostly target people in hard to reach and inaccessible rural areas. Despite the different interventions, malaria prevalence remains high. For purposes of presentation, focus is put mainly on vector control and Case Management interventions because these are widely advocated and apply to all age groups, sexes and localities. It is important, for better analysis, that these interventions are reviewed independently.

3 Results

3.1 Vector control measures

The two widely and commonly known means of vector control and malaria prevention are IRS and use of ITNs; both are effective [21,22]. In Uganda these interventions have been promoted widely, especially in rural areas, and are believed to have played a big role in the registered successes in malaria control. IRS involves applying to the interior walls and ceilings of homes a measured amount of an insecticide that leaves a residue that destroys mosquitoes that could have caused malaria. IRS is a viable strategy and if used properly checks the spread of malaria through eliminating mosquitoes from using their resting sites inside houses. It is important to note that Uganda was one of the few countries to pilot IRS on a large scale. As part of the WHO pilot programme between 1959 and 1963 IRS was tried in some areas in the south and south-western regions of the country [22]. It was, however,
never scaled up as a national programme partly because this period coincided with the start of the failure of the WHO malaria eradication campaign and the banning of DDT as a chemical for malaria control. Since then, the adoption of IRS has remained largely ignored with no clear national policy framework, until it was reintroduced in 2006. With increasing global focus on malaria control, the Ugandan government and its partners have designed a number of IRS programmes and these are coordinated under the Integrated Vector Management (IVM) approach. IRS mainly targets malaria epidemic-prone areas but has also been implemented in public places like military barracks and hostels in boarding schools, among others, irrespective of the level of endemicity. For instance, in 2006, the ministry of health in partnership with USAID and Research Triangle International piloted IRS using ICON (lambdacyhalothrin) in Kabale district with the project spraying 103,329 houses, resulting in more than 488,502 residents being protected from malaria, including 82,275 children. The same year the Ugandan government announced that it would embark on a national DDT spraying campaign in a bid to completely eliminate malaria. DDT was piloted in the district of Apac in 2008. However, the use of the chemical generated a lot of controversy with demonstrations led by opposition politicians, mainly in Kampala city. Spraying of DDT has since been halted.

Current national IRS coverage focuses on epidemic-prone areas, including geographically vulnerable populations and those in internally displaced persons camps in the mid north and north eastern regions including districts like Gulu, Kitgum, Oyam and Kumi, among others. Most of the areas sprayed are predominantly rural and ICON is the most used chemical. Uptake of IRS is however still low in both urban and rural areas and only 6% of households were sprayed in 2009, just like in 2006 [11]. This low adoption makes it difficult to gauge the extent of support for this method, especially in rural areas that are not yet sprayed. It is also important to point out that the low uptake of IRS is mainly due to limited funding. There are other types of insecticides like Doom and Bop, among others, which are commercially available in shops, super markets and other trading units in the country and have been used to deter mosquitoes. Such insecticides however cannot be compared to IRS as they have no residual properties and cannot be used on a large scale. They are also mostly used in towns compared to villages due to problems of availability and related costs.

ITNs have also shown to be a viable strategy for controlling malaria in the country. ITNs refer to both factory and post factory treated nets. These include Long Lasting Insecticide Nets (LLIN) and retreated nets. The promotion of ITNs and their use was introduced in the country in the early 1990s, by NGOs in the form of limited projects covering small populations [23]. The strategy has been made more coherent with the design of a policy paper. Uganda’s policy on ITNs is contained in the National ITN Policy and Strategy document. The National ITNs strategy aims at narrowing the gap between equity and sustainability [23]. This policy has been adopted and revised so as to realign to changing requirements for malaria control. The current policy emphasizes universal access and distribution of LLINs. Universal bednet coverage is defined as three ITNs per household. The main intention of the LLIN is to ensure that all at risk groups, especially pregnant women and children, have access to LLINs. As part of this strategy, significant strides have been made especially with regard to ownership of nets. The malaria indicator survey notes a substantial increase in household ownership of nets. It is reported that 59 percent of households in Uganda have at least one mosquito net (treated or untreated), 47 percent have at least one ITN, and 46 percent have at least one LLIN. This is a big increase from 34 percent of households who owned at least one mosquito net and only 16 percent who owned at least one ITN in 2006 [11]. Regional differences exist, with low ownership rates and utilization rates of bednets in rural compared to urban areas. For instance only 39.2% of people in rural compared to 53.7% in urban areas slept under a net the night prior to the 2009 malaria indicator survey.

The role played by ITNs in and outside Uganda, especially in sub-Saharan Africa, also needs to be underlined. Records indicate that in sub-Saharan Africa 5.5 deaths are prevented each year for every 1,000 children using an insecticidal net [24]. Large studies in The Gambia, Ghana, and Kenya have documented a 17-63% reduction in overall child mortality as a result of ITN use. The conclusion is that ITNs are very effective if used properly. Whereas specific data on the number of averted deaths due to use of ITNs in Uganda is lacking, available data indicates that benefits of ITNs go beyond the individual-user-the benefits trickle down to the community which may be offered protection if such nets are used on a large scale. This happens when such ITNs are appropriately treated, thereby bar- ing and killing mosquitoes that come into contact with the net. As noted by the ministry of health-malaria control programme “Not only is their protective effect twice as high as an untreated mosquito net, an ITN also continues to protect even when there are holes in the net, and can protect a person who is not sleeping directly under but next to the net”. ITNs protect households that use them in addition to the entire community if more than 50% of all households in that community have at least one ITN [25]. This is the reason why large-scale community distribution of ITNs is becoming fashionable, despite the related costs. Indeed, community distribution programmes have increased ownership and it is reported that 5.2% of people in rural compared to 2.6% in urban owned a net through mass distribu-
tion campaigns [11]. A number of NGOs including USAID, AMREF, and OXFAM have worked to distribute either free or subsidized bednets. These have partnered with the MoH and community-based organisations to run a number of programmes that especially target communities in rural areas. For instance, USAID is currently working in partnership with Integrated Community Based Initiatives (ICOBI) on the distribution of ITNs in rural communities in western Uganda.

The private sector is also involved in bednet distribution through markets and pharmacies and sometimes business organisations like Standard Chartered Bank and the Mukwano group have partnered with either the government or NGOs to distribute nets. These used different distribution strategies stretching from home distribution, voucher systems, setting up of distribution centers at parishes, health units, and sometimes at sub county/division headquarters. The intention is too look for the most convenient ways for distribution. Social marketing programmes, which either distribute for free or at subsidized prices have also been widely adopted to reach villages. Organisations like Population Services International and the Uganda Health Marketing Group, have been involved. A voucher system was adopted in order to enable poor and vulnerable beneficiaries to purchase nets and insecticides at a subsidised price through a public-private partnership. This however did not work as planned and unfortunately business and social sector partnerships remain scanty and coverage of commercial programmes remains uneven, with the poor and people in remote rural areas finding it particularly hard to access or afford nets, or to re-treat those they already own [26]. In addition, free distribution of ITNs seems to be undermining business opportunities in malaria control as it reduces the customer base and subsequent profits.

3.2 Case Management

Case Management refers to effective treatment of malaria within 24 hrs of the onset of symptoms. The strategy aims at improving treatment-seeking behaviour so that patients or caretakers recognise the signs and symptoms, know what action to take and where treatment is available. Case Management is concerned with improving access to effective diagnosis and treatment in terms of access to physical facilities, drugs and trained providers. The strategy is believed to be one of the most effective treatment strategies for malaria control in relation to the entire population [27]. Case Management should boost the administration of a complete effective antimalarial treatment and provision of the necessary supportive care unless a diagnostic procedure has shown that the patient does not have malaria [28]. This is important because it is believed that without immediate treatment severe malaria is likely to develop.

In rural areas the emphasis on fast treatment is particularly important due to the severity of malaria and the realisation that preventive measures may not work as expected. This is why case management strategies in Uganda have been devised to ensure that rural areas and malaria risk groups have access to immediate and appropriate treatment. Such strategies have tried to seek the participation of community members with a view to boosting support and ownership of the strategies concerned. Most notable of such strategies has been the WHO-supported ministry of health Home Based Management of Fever/Malaria (HBMF) strategy that was developed in 2002 by the Ugandan government in collaboration with WHO and UNICEF in order to offer appropriate treatment to children below five years of age. It is important to note that there were a number of strategies targeting especially children using community volunteers with sometimes replication of existing strategies. The HBMF and UNICEF Home Based Care of childhood illness strategy in Northern Uganda serves as an example. These strategies have since been redesigned and integrated with other strategies referred to as Integrated Community Case Management (ICCM). The ICCM mainly targets children rather than the general population. Community participation is at the heart of these programmes. A number of case management strategies in the country have incorporated community members who are mostly volunteers and these have taken on different titles like Community Owned Resource Persons (CORPs), Community Medicine Distributors, and Village Health Team Peer Supervisors, among others.

The case management strategy has also been reinforced with the change of the first line drug treatment policy. Traditionally, treatment of malaria in the country has mostly relied on chloroquine but the last decade has seen an upsurge of the disease and resistance to treatment. This forced the government to revise the malaria drug treatment policy three times. From chloroquine monotherapy to chloroquine and sulfadoxine pyrimethamine (CQ/SP-fansidar) in 2001. In 2004 Artemisinine based Combination Therapy (ACT) was proposed and adopted in April 2006 as the first line treatment regime. In addition, the Home Based Management of Fever Strategy (HBMF), launched in 2002 to distribute chloroquine+sulfadoxine pyrimethamine (Homa-pak) also adopted ACT-Coartem in 2006. These policies and measures have been adopted but have not fully benefited the local population. Available information indicates that a significant proportion of people still use old, phased-out, treatment regimes [11,12].

It is also important to note that there have been attempts by the Ugandan government to extend health units to rural areas and train a number of medical workers to provide treatment. The set up of health centres Is at parish level and the creation of Village Health Teams is meant to strengthen
the drive towards Case Management. According to Ministry of Health "The Village Health Teams (VHTs) now form the foundation for implementation of Uganda’s child survival strategy for community case management of malaria, diarrhoea and pneumonia. The strategy works with one VHT member per 25-30 households, with two members per village handling the drugs (who are sometimes still referred to as VHTs)". Given the fact that VHT members are selected from within the community, it is highly probable that such members ensure the local needs are met. Despite this development, a number of hindrances still limit rural areas from accessing immediate treatment. Inadequately skilled health workers, drug stock outs, poor treatment-seeking behaviour and long distances to health units, among others, continue to limit the realisation of expected results. Indeed, the Uganda National Household Survey report reveals that communities on average cover a distance of 7 km to a government health unit [6]. In Mbarara district, for instance, it is reported that patients having to travel long distances to get to the nearest health centre limits access to health services. There is also shortage of staff, with only 420 health workers out of the required 1,100 [29]. It is further reported that urban areas benefit more from availability than rural areas, where drug supplies are low, out of stock, or never available. There are also other challenges including poor diagnosis and lack of testing facilities. Currently the government is considering distributing rapid diagnostic test kits for malaria.

4 Discussion

The different core interventions of malaria control in rural Uganda have been translated into action on the ground and in rural areas. It is evident that most, if not all, efforts towards malaria control initiatives have ensured a basic minimum level of local participation or at least concern to that effect. This can be judged from the different community-based malaria control initiatives as highlighted above. It is an undoubted fact that such community initiatives bring malaria control closer to the local/grass root people and this is important in rural areas where malaria is limited by physical, social and economic obstacles. This could be the reason why malaria prevalence in the country declined even though it is still high. It is important to note that malaria and its effects remains a major concern especially in rural areas and this is the reason why the already existing community interventions need to be strengthened towards localisation. In this case localising malaria control means adopting interventions developed from local/rural areas, by rural areas and for rural areas and adjusting non-rural area interventions to meet local conditions.

Malaria is a local problem caused, spread and exacerbated locally. A number of interventions have tried to target communities so as to better target the most affected groups and meet the local needs. It can be said that most if not all the malaria interventions are part of the worldwide Roll Back Malaria partnership. This is healthy given the current global malaria impact and related financial, technical and strategic constraints. However, it has resulted into sideling of local malaria control strategies, which may better suit rural areas. Whereas the Ugandan ministry of health has taken a stewardship role in incorporating the country’s needs into such international malaria control programmes, a lot remains uncatered for. Most notable is the fact that the different malaria initiatives in the country with or without a community connection have largely not tried to back on existing traditional strategies. For instance, from Uganda’s national malaria control strategic plan, it is easy to conclude that such local strategies are sidelined. The strategy does not mention any traditional/local malaria method either as a stand-alone core intervention or one integrated with other interventions. Traditional malaria control methods are neither documented nor advocated for. The strategy of environmental management for malaria control would have been one of the initiatives that incorporate traditional malaria control methods as it aims at denying mosquitoes access to suitable breeding sites.

Unfortunately, emphasis is put on the use of chemical control in urban areas where a significant impact on transmission can be registered. This has relegated some of the rural area’s convenient and cost-effective strategies like clearing stagnant water sources and bushes and use of traditional herbal medicine, among others. For instance, Uganda’s Malaria Control Programme (MCP) states that bush slashing is not part of the strategy for vector control simply because the mosquitoes which transmit malaria in Uganda mostly feed and rest indoors rather than outdoors in bushes. However, like the programme rightly notes Anopheles gambiae prefers temporary water bodies for breeding and slashing surrounding bushes ignites clearing not only such sites but also general cleanliness around places like toilets where mosquitoes may rest. Therefore, there is no reflection on the enormous trickle-down effect that such a convenient method would contribute to the preventive sanitation and hygiene practices in and outside the household. Once these are not emphasized then implementation of other strategies loses momentum. This limits the adoption of such strategies at household and community level and further limits possibilities of support by community members or enforcement by local authorities. It is important to note enforcement of malaria interventions is vital especially where goodwill and voluntary implementation of proven strategies has failed. In a country like Rwanda, where traditional malaria strategies are not part of the country’s malaria control strategic plan just like other RBM countries, there is strict enforcement of basic sanitation practices and this has
resulted into more support and adoption by the population. This has subsequently reinforced existing strategies and translated into fewer malaria cases. In Uganda, enforcement of basic traditional malaria control mechanisms is poor. A study conducted in Mbarara, Uganda, found that traditional malaria control policies were ineffective largely because the local authorities could not enforce them. They were operating on the goodwill of community members with local leaders rarely enforcing proper adoption and utilisation of such strategies as required [30]. The biggest question then is why enforcement is lax. Whereas there are other reasons, the failure to integrate such strategies into the country’s policy contributes to such laxity. Such lack of commitment to adoption or enforcement by the users and local authorities undermines malaria control interventions particularly in rural areas.

It is also important to mention that the Ugandan government has tried to integrate a number of malaria interventions so as to better reflect community concerns. The use of community volunteers is particularly important because it enlists community ownership and participation - an aspect important for localisation. Some of the community resource persons running initiatives like VHTs, Integrated Childhood Case Management (ICCM) come from local communities. This approach is, however, greatly constrained especially when it comes to motivation and facilitation of the selected volunteers. Sometimes the selection of such volunteers is subject to political manipulation, bias, nepotism and corruption where some local communities or groups of people are not appropriately represented. A rapid assessment of community case management of childhood illness in Northern Uganda found that community ownership, with regards to the community’s involvement in selecting their Community Medicine Distributors (CMDs) and being supportive of the CMDs, both at local authority level and at household level, was a problem across the four districts covered. More men were selected and distributors did not represent the villages of people in camps because they were selected based on the preference of Local Council authorities (MoH 2009). This is a microcosmic picture of what happens countrywide. In addition, in most cases people who are selected to run community malaria programmes are not necessarily those who are worst hit by the illness. The poor, uneducated and people worst hit by malaria are usually sidelined and not selected and trained to use and distribute medicines. Instead they are their counterparts who are used because they have the basic skills. Ideally those worst hit by the sickness would be first treated and trained to treat others. As reported, in Africa, more than 70% of malaria episodes in rural areas are self-treated and the first treatment often involves drugs bought from ordinary retail shops that sell daily essentials to the local population [30]. It is not that all people who buy such drugs are educated. Whether poor or uneducated, people will always find a way to access and standardise treatment based on given instructions and this is better when they are trained to treat themselves and not simply handed medication.

The disconnection between the local uneducated people and their educated counterparts is also experienced with other initiatives and widens at a macro level. Most malaria control projects are planned, written and implemented by the elites from urban areas. Project proposals, for instance, are the major means of soliciting money for projects and these can be written by people who have the expertise that rural dwellers are believed to lack. In Uganda this resulted into money and subsequently malaria control ‘remaining in the hands of the elites’. Evidence during the Global Fund saga where money for HIV/AIDS, malaria and tuberculosis control was swindled points to the fact that most of this money remained in Kampala (the capital city) and in the pockets of people who had connections with top authorities with a few elites from rural areas. A study about DDT policy conducted in 2004 in Ethiopia, Uganda and Kenya found out that in Uganda, the Ministry’s initiative to introduce DDT was driven by government elites, rather than malariaous communities themselves; the general population of Uganda is not particularly adamant about the DDT issue, the study added [32]. Indeed the biggest demonstrations about DDT in the country never took place in rural or malariaous communities. This is why there were virtually no demonstrations in Apac district where DDT was tried, but these were huge in Kampala. One may argue this could have been due to lack of information by rural dwellers about the effects of the chemical, which formed the basis of demonstrations. How would such rural dwellers get the information if they are never let to know? DDT spraying has been halted not because it is dangerous - it was never packaged to suit the targeted groups. Malarious communities desire a chemical that is safe and can inhibit mosquitoes and not necessarily non-DDT insecticides.

A number of initiatives with regard to distribution of ITNs/LLINs have been made with international, government and community-based organisations. Whereas ITN coverage remains low in the country, a considerable number of such nets have been distributed either at subsidised prices or free through social marketing and large-scale distribution exercises. It is, however, important to note that such large-scale distribution programmes are limited compared to other countries like Kenya or The Gambia where malaria cases have been greatly reduced. Large-scale distribution of bednets in Uganda is still limited in implementation largely because of related costs. It is, however, important to note that modest campaigns have been run with the new LLINs but unfortunately post distribution/evaluation studies are scanty. In addition, whereas these large distribution programmes target communities, in reality they look
out for specific groups and households especially those with children under five and pregnant women. Unfortunately, the targeted groups may not necessarily use such nets because of lack of power. Sometimes such freely distributed nets are snatched away by husband spouses. In other cases, the nets are not properly used because of the limited housing assets. For instance, a small single bed (3x6 ft) is less likely to allow for proper use of an untreated net even where family size nets are used if such a bed is used by the husband, wife and child. Whereas the government’s policy has shifted to LLINs, a large number of untreated nets remains in households and continues to be bought from shops especially where household members fail to access free nets. Even where treated nets are availed the provided information is ambiguous and sometimes misleading. The information on Uganda’s Malaria Control Programme-MoH website indicates that ITNs continue to protect even when there are holes in the net, and can protect a person who is not sleeping directly under but next to the net could be misleading especially for the rural uneducated folk [25]. The extent of tearing and sometimes the strength of the excitorepellent effect need to be underlined. Large-scale net distribution programmes aim at covering a big population but do not usually get aspects about such intra-household and technical issues highlighted. Also, impact evaluation of such large-scale distribution programmes in Uganda is very limited judging from the scanty literature available and this may be the reason why Uganda’s large scale ITN/LLIN distribution is part of the least known/published programmes.

5 Way forward

Integrated malaria management is necessary and the only question that remains relates to which methods are best to integrate. The best answer is one that incorporates all the methods especially those that enlist the full participation of the users. As advocated by the World Health Organization, the combined use of all the proven tactics and available malaria control tools is the most effective way to check the spread of malaria [31]. This points to integrated malaria management. Importantly, in all the methods used and whatever the mix of integration, there is need to emphasise and strengthen approaches that promote community and local expectations and needs. Most notably: There is need to engage poor and uneducated people worst hit by malaria in initiatives aimed at combating the disease. A fundamental shift in the selection of community volunteers will make poor uneducated people not only be challenged to control malaria but give them the opportunity to acquire basic skills already possessed by their educated peers. Processes and systems need to be developed or strengthened to favour such groups. These include pre-packaging drugs, pictorial messages, constant communication, routine supervision and where issues of recording and numeracy are concerned, teams of members with basic skills and those without should be encouraged.

There is also a need to develop methods and materials for malaria control that suit local conditions and enlist the convenient use and participation of people from such localities. In a community in rural Peru for example, community members were taught to use Bacillus thuringiensis var. israelensis H-14 (Bti) produced locally using coconuts, and this helped to enlist the support for the strategy because it sought not only participation of locals but also use of locally available resources and this resulted into killing mosquito larvae and reducing malaria infections. Funding for local malaria control trials should be given priority because they increase participation and adoption of such strategies. The ITN may also need to be revolutionised to accommodate the local needs. Given the fact that one of the problems to ITNs relates to regular and consistent use, trials need to focus on how ITNs could be made more handy and convenient to use. A new design that allows convenience in use needs to be developed to suit especially rural people. For instance, the ITN may not need to be put on and removed off the bed every night instead a convenient alternative needs to be developed. Trials into aspects that work like the ITN without its associated problems would offer better results.

 Indigenous malaria control strategies should be emphasised, encouraged and enforced for implementation. Most of the convenient and low cost strategies, which should have naturally been adopted by community members in rural areas, have been replaced by international policies like IRS or ITNs. Sometimes basic hygiene and sanitation-traditional malaria control interventions like clearing channels and bushes around houses, among others, have been taken up by the government and its partners without either facilitating or enforcing household members’ participation where necessary. The government should only venture into interventions that are technically complex for households and communities to implement. Household members should be obliged by the authorities to maintain basic sanitation and hygiene in and around their household and communities and this will rip out malaria. Strict enforcement of basic hygiene and sanitation by rural authorities is necessary if malaria control is to become a reality. Donors and sponsors of malaria control projects need to facilitate authorities to encourage but also enforce malaria control requirements where appropriate. Enforcement of community days could help a lot in malaria control. Households may be divided into smaller groups and allocated areas for managing in and outside their zones which pose potential danger for mosquito breeding and spreading. By promoting a culture of responsible citizenship and neighbourhoodness which initially may need to be enforced, rural areas will
benefit through malaria control and this will improve not only health standards but also other desired quality of life indicators like income through increased savings and regular participation in social and economic activities. This will accelerate rural transformation.

Efforts towards empowering local people in rural areas to manage processes related to production and distribution of malaria control materials should be strengthened. Developing countries, and Uganda in particular, have been actively receiving and using malaria control resources, equipment and materials without putting in place initiatives to sustainably transfer skills to the final beneficiaries. For instance, bednets are imported and widely distributed in Uganda but not locally manufactured. The argument has been that processes and production requirements may be too complex for local people. However, sometimes the production of such materials is not as complicated as thought. Training, funding, production and distribution of nets can be made possible through local schemes. For instance communities can be supported to engage in the assembling of nets using available materials like using new or existing second hand nets, window curtains, threads and trained on how to retreat them. When local people are trained to take charge of production processes related to malaria control, not only would employment opportunities be created but communities would also be empowered to develop their own systems to solve their own problems. This raises better hope and support for community development. The international community needs to develop programmes to ensure that local communities acquire the necessary skills to enhance malaria management. This reduces the money that would have been spent and the related exploitation from traders. It is unfortunate when communities worst affected by malaria are the ones that export raw products from which final medicines are made and sold back to them at exorbitant prices. This eliminates local producers and further retards rural transformation. In this regard, currently some farmers in Uganda produce Artemisia annua from which artemisinin for treating malaria is made, however the country imports ACTs (Artemisinine-based Combination Therapies). This does not benefit the local farmers nor their communities because the imported medicines are later sold at exorbitant prices, which would have been scaled down if production took place within the producer communities. Rural areas would benefit tremendously if appropriate technologies and systems were designed to make communities take charge of processes right from planting to harvesting and making the end product.

It is important to underline that there are a number of factors responsible for ineffective malaria control in rural areas and some not in control of any of the actors in malaria control including rural areas. These range from issues to deal with new malaria strains, limited physical health infrastructure, inadequate health resources, costs, distance and negative health seeking behaviour of people in rural areas. However, strengthening efforts towards localising malaria control interventions should be at the core of any malaria control programme. This will greatly check the aforementioned factors and result into effective malaria control, which may result in rural transformation.

6 Conclusions

There is a persistent high malaria burden in Uganda despite the adoption of mostly international initiatives to combat the problem and the modest reduction in prevalence rates. This can be explained by a number of factors within and outside malaria control interventions. One of the factors relates to how malaria control particularly in rural areas is localised. It is important to emphasise that most of the strategies in the country have been revised to incorporate some community linkage and have been implemented in partnerships. However, if Uganda is to maintain the momentum on malaria control, there is a need to strengthen such initiatives. This is possible through mainly integrating indigenous malaria control strategies with modern international initiatives and strengthening efforts towards empowering local communities to take charge of malaria control interventions.

References

14. Uganda Ministry of Health online, The burden of malaria, Why all should join hands in the fight against malaria.