ICRAM project in Anambra State

Report on research findings

November 2014

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Improving Community Response to Management of Malaria (ICRAM) project

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Additional information about the Improving Community Response to Management of Malaria (ICRAM) project in Anambra State may be obtained from Christian Aid Nigeria by emailing **nigeria-info@christian-aid.org**

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Contents

Cover photo: Staff from ICRAM partners provide community outreach in Anambra State.

All photographs in this report kindly provided by AD-CHUS, except page 8 (Christian Aid/Rachel Stevens).

List of acronyms

ACT	Artemisinin-based combination therapies
AD-CHUS	Aguata Diocesan Community Human Services
ADONHACDS	Anglican Diocese of Nnewi Health and Community Development Centre
BCC	Behaviour change communication
EFMC	Excellence & Friends Management Consult
FGD	Focus group discussions
HCW	Healthcare workers
HRP-2	Histidine-rich Protein-2
IEC	Information, education, communication
JDPC	Justice, Development and Peace Commission
KAP	Knowledge, attitudes and practices
KII	Key informant interviews
LGA	Local government area
LLHF	Lower-level healthcare facilities
LLIN	Long-lasting insecticidal nets
MDA	Ministries, departments and agencies
mRDT	Malaria Rapid Diagnostic Tests
NFL	NetsforLife®
NMCP	National Malaria Control Programme (now National Malaria Elimination Programme)
PHC	Primary healthcare centre
PMV	Patent medicine vendor
SuNMaP	Support to National Malaria Programme

Christian Aid's work on malaria in Nigeria

Since Christian Aid commenced work in Nigeria in 2003, it has focused on community health and HIV, accountable governance and conflict reduction, climate change and pro-poor energy. Working largely through church partners, the programme has had a strong service delivery emphasis.

However, in the past two years, it has been shifting towards a more structural approach, incorporating governance and advocacy into all its work, and seeking integration between its programmatic areas

Christian Aid's approach to malaria programmes

Christian Aid has run malaria programmes in Nigeria since 2007 to ensure poor and marginalised people have an opportunity to lead healthy lives in relation to malaria prevention, health seeking behaviours and obtaining malaria diagnosis and treatment options.

Two main projects have been implemented to date. These have contributed marked positive changes among community members (including pregnant women, people living with HIV/AIDS and children), healthcare workers (HCW), patent medicine vendors (PMV) and community-based organisations. Activities included:

- faith-based and community-based partner organisations, other indigenous and international NGOs and ministries, departments and agencies (MDAs): leveraging the resources of the church and working through networks of volunteers; building on partners' credibility and access to communities; ensuring linkages with health clinics and other service providers
- providing tailored organisational capacity-building interventions to partners, including in financial management, planning and monitoring and evaluation
- pre net distribution activities: baseline survey; identification and training of community agents (volunteers nominated by their communities who are able to run malaria education sessions); community-based malaria education to raise awareness and create demand for nets; household survey and registration
- net distribution: two nets per household are distributed according to the household register, whilst additional nets are provided for vulnerable groups such as families with young children, pregnant women and people living with HIV
- post net distribution activities: ongoing education activities, facilitated by the community agents, to reinforce a net use culture; household visiting to monitor and document net use and provide advice on use and care; repeat of baseline survey to determine retention and use of nets
- stakeholder and partners' involvement in project design, planning, implementation, monitoring and evaluation
- incorporation of governance and gender dynamics in project design and implementation
- evidence-based programming.

'If you want to make a difference in Africa, you have to make a difference in Nigeria.'

UK Department for International Development Governance Advisor, Nigeria, 2011

Below: ICRAM provided malaria education to primary school children in Anambra State.

Summary and achievements

NetsforLife®

The **NetsforLife®** project was implemented in Benue, Plateau, Edo and Anambra States from 2007-13, promoting changes in behaviour, knowledge and attitudes to contribute to malaria prevention.

Interventions included individual and community actions to reduce mosquito habitats; the development of a 'net culture' in which nets are valued and used consistently, especially by vulnerable groups; and the adoption of effective treatment-seeking behaviours. The project was implemented through networks of about 1,000 trained community-based facilitators who provided systematic and ongoing education and behavioural change communication activities.

Christian Aid and its community-based partners distributed over 930,000 long-lasting insecticidal nets (LLIN), costing £921,000, less than £1 per net, with more than two million people benefitting in 2,412 rural communities. A knowledge, attitudes and practices (KAP) survey conducted in 2013 showed the project was a huge success:

- Net ownership (two or more nets per household, in line with national standards) increased significantly in the target communities of the two states evaluated in 2012: in Benue from 29% (in 2011) to 82% (in 2012) and in Plateau from 13% (in 2007) to 86% (in 2012) with an overall 95% increase in 2013, when all four states were evaluated. This increase was a direct consequence of the project.
- Of those people questioned who owned a net, over 90% in Benue and Plateau reported that they slept under nets in 2012. This rose to 95% in 2013, when all four states were evaluated.
- More than 80% (in 2012) and 95% (in 2013) of respondents reported that LLIN are the most effective method of preventing malaria and are using them.
- 90% (in 2012) and 99% (in 2014) of respondents knew that malaria is transmitted through mosquitoes and could identify the main symptoms.

ICRAM

The **Improving Community Response to Management of Malaria (ICRAM)** project was implemented in Anambra State between May 2013 and September 2014. It piloted the feasibility of the use of malaria rapid diagnostic test kits (mRDT) at the community level by PMV and all lower-level health facilities (LLHF). It also demonstrated effective links between mRDT, Artemisinin-based combination therapies (ACT) and LLIN in malaria programming in the target communities.

The project employed several strategies including advocacy to key stakeholders in the state, mobilisation of community members, capacity building of HCW and PMV in malaria case management using Federal Ministry of Health National Malaria Control Programme (NMCP) training manuals, training of community health agents, and distribution of mRDTs to primary healthcare centres (PHC) and PMV. Project successes included:

Below: A NetsforLife® co-ordinator explains how treated mosquito nets protect people from malaria. Christian Aid and its partners distributed 930,000 nets as part of NetsforLife®.

- increase in knowledge of malaria among community members
- change in reported first place of visit on presentation of malaria symptoms from pharmacy/PMV (at baseline evaluation) to government hospital/PHC
- increased willingness of communities to pay for nets and tests
- reduction in presumptive treatment of malaria by PHC and PMV
- evidence PMV could be successfully included in national campaigns to make malaria services available to communities
- increased confidence of community members in services provided at PHC, as displayed by increased patient flow
- greater capacity of PHC staff in commodity logistic management and forecasting, shown by a marked reduction in stock-outs
- renewed trust in mRDT for malaria diagnosis by HCW
- increased involvement and participation of community members through ward development committees to advocate for improved service delivery in target communities.

ICRAM+

Christian Aid has scaled up its community health interventions into Kaduna State with a three-year, JC Flowers Foundation-funded malaria project, **Improving Community Response Against Malaria (ICRAM+)** using learning from the ICRAM project and a three-pronged approach of advocacy at different levels, private sector engagement and partnerships and collaboration with other international non-governmental organisations and relevant MDAs.

The project, which began in March 2014 with intensive partner capacity building, has a grant of £300,000 and aims to increase the number of families protected by malaria nets, promoting a 'net culture' in which nets are valued and used consistently, especially by vulnerable groups, and increasing the number of people seeking effective malaria diagnosis and treatment in 10 target communities.

The expected results are:

- LLIN ownership and consistent usage will increase by 60% against the baseline in 10 target communities in Kaduna State.
- KAP regarding malaria prevention and treatment will improve from baseline in 60% of 7,500 households targeted.
- Understanding and demand for malaria testing and appropriate treatment within 24 hours of onset of symptoms will increase by 60% in 10 target communities.
- The total population of the 10 target communities, an estimated 50,000 people, will be better informed on malaria prevention.

Future plans

Christian Aid will continue to provide post net distribution support to its partners in Plateau, Benue, Kaduna and Anambra states. Our partners will seek to fill any gaps in net coverage in their target local government areas (LGA) and continue malaria prevention activities, leveraging wider community health interventions funded under Christian Aid's Programme Partnership Arrangement (PPA) with the UK Government's Department for International Development.

Executive summary

Malaria is caused by five different species of the genus Plasmodium, a parasite that affects human beings and is endemic in Africa. Malaria caused by P. falciparum is the most fatal and is mostly predominant in Africa and in Nigeria, being transmitted through a bite by an infected female Anopheles mosquito. Malaria prevention includes environmental control, vector control measures such as use of insecticide-treated nets and indoor spraying of insecticides, and behavioural changes. Treatment measures include preventive chemotherapy, diagnosis using microscopy or rapid diagnostic tests, and treatment with appropriate antimalarial medicines.

Malaria constitutes a major public health, economic and health systems burden, in Nigeria, across Africa and globally, despite being curable and preventable. Nigeria bears up to 25% of the malarial disease burden in Africa, contributing significantly to the one million lives lost per year in the region, which largely consist of children and pregnant women. Malaria accounts for up to 11% of maternal mortality and 10% of low birth weight births. In addition, it contributes to up to 25% of infant mortality and 30% of under-five mortality, resulting in an estimated 300,000 childhood deaths annually.

In Nigeria, presumptive treatment of fever with antimalarial medicine is widely practised, especially at lower-level health care facilities (LLHF), PHC, health posts and dispensaries where microscopy is not readily available. This has drawbacks, including misdiagnosis, delayed management of childhood febrile illness of non-malaria aetiology and childhood mortality.

Access to accurate diagnosis and ACT close to home will reduce malaria-related deaths, especially among children and mRDT, which makes parasite-based diagnosis possible where microscopy is unavailable, has the potential to be a key component of community case management of malaria.

This pilot study was conducted to establish the value of a combined approach to malaria management through prompt diagnosis (mRDT), effective treatment (ACT) and barrier protection (LLIN) at service delivery points to reduce the burden of malaria on poor and vulnerable households in Anambra State.

The pilot project was evaluated using a mixed method of both quantitative and qualitative research to explore knowledge, attitudes, practices and beliefs on community management of malaria using a structured and validated questionnaire to collect information from respondents in the selected localities. Qualitative methods included focus group discussions (FGD) and key informant interviews (KII) to enrich the outcomes from the quantitative component. Routine service data on malaria treatment was also obtained from the health facilities for six months prior to intervention and throughout the eight-month intervention period. The baseline evaluation was conducted prior to commencement of the project; this post-intervention evaluation will assess the impact of strategies and interventions and compare the evaluation findings with the baseline values.

Ethical approval to conduct this pilot study was obtained from the National Health Research Ethics Committee, Federal Ministry of

‘Nigeria bears up to 25% of the malarial disease burden in Africa, contributing significantly to the one million lives lost per year in the region.’

Health, Nigeria. Informed consent was obtained from all respondents before commencement of interviews.

The project findings showed a marginal increase in knowledge of malaria and its symptoms (3% increase in Ihiala LGA). There seemed to be knowledge saturation at baseline, with knowledge as high as 97%. There was a 5% increase in recognition of mosquitoes as the major cause of malaria in Aguata LGA and a change in the reported first place to go on presentation of fever and other malaria symptoms from pharmacy/PMV (from 51% at baseline to 45% at end) to government hospital/PHC (from 29% to 36%). This was more remarkable in Aguata LGA, where first presentation at government hospitals increased from 37% to 51%.

The amount respondents were willing to pay for insecticide-treated bednets and malaria tests showed a decline from baseline to endline. Distribution of free commodities leads to apathy towards buying when the free distribution ceases.

The project also demonstrated a massive reduction in presumptive treatment of malaria in project health facilities and PMVs from 100% to 0%. This proves that PMV could be successfully included in state and national campaigns aimed at making malaria services available to the communities at their preferred location.

This study demonstrates that malaria is a known common healthcare problem in the communities surveyed, but that there are disparities in health-seeking behaviour and treatment modalities. It explored the socio-economic conditions of the beneficiaries and matched it with their attitudes, knowledge and beliefs about malaria.

The good level of knowledge of malaria and its symptoms, diagnosis and treatment, provided a good base from which to improve understanding through community education and awareness, create demand for malaria control health services and provide support to the government and health facilities on the supply side of commodities. Other strategies, such as improving commodity logistics and availability, improving the quality of services through training, mentoring and monitoring, and engaging other private providers (eg PMV, which already provide most of the services) were also employed. The project showed that PMV are willing and able to conduct malaria tests before giving treatment for fever. This is evidenced by showing that presumptive treatment for malaria reduced from 100% to 0% at the PMV level within the period of project implementation.

There is a need to intensify community-based education on the causes and symptoms of malaria, where to go on presentation of malaria and malaria-like symptoms. This should be tailored to suit the audience, using their preferred local language (Igbo in the instance of this project) and medium (radio and home visits). To ensure the gains are sustainable, this education should be complemented by making ITN and mRDT available in a way that leads people to accept the transition from free distribution to gradual introduction of fees. Both PHC and PMV are suitable avenues to promote prompt diagnosis and effective treatment of malaria.

Below: Community members gather for an mRDT session.

Introduction

Background

Malaria, caused by parasites of the genus Plasmodium, is endemic throughout Africa[1] and Nigeria[2]. Five species of the genus Plasmodium affect human beings: Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale, Plasmodium malariae and Plasmodium knowlesi.[1] However, malaria caused by P. falciparum is the most fatal and is mostly predominant in Africa and in Nigeria.[1,3] The Plasmodium parasites that cause malaria in human beings are transmitted through a bite by an infected female Anopheles mosquito.[2]

Malaria prevention includes environmental control, vector control measures such as use of insecticide-treated nets and indoor spraying of insecticides, and behavioural changes. Treatment measures include preventive chemotherapy, diagnosis using microscopy or rapid diagnostic tests, and treatment with appropriate antimalarial medicine.[1]

Malaria constitutes a major public health problem, in Nigeria and across Africa, despite being curable and preventable,[1,4] as it accounts for morbidity and mortality, especially in pregnant women and young children.[4,5] Nigeria bears up to 25% of the malarial disease burden in Africa, contributing significantly to the one million lives lost per year in the region, which largely consist of children and pregnant women.[3] Malaria-related deaths account for up to 11% of maternal mortality and 10% of low birth weight babies. In addition, they contribute to up to 25% of infant mortality and 30% of under-five mortality, causing an estimated 300,000 childhood deaths annually.[3]

The disease also places huge demands on the health system, which already faces severe constraints. Nearly 110 million clinical cases of malaria are diagnosed each year, and malaria contributes to up to 60% of hospital outpatient visits and 30% of admissions.[3] Malaria also exerts a huge social and economic burden on families, communities, and the country, causing an annual estimated loss of ₦132 billion (£3.8million) spent on treatment and prevention as well as a huge loss of person-hours, according to the NMCP.

In Nigeria, presumptive treatment of fever with antimalarial medicines is widely practised to reduce morbidity and mortality, especially at lower-level healthcare facilities (LLHF): primary health centres (PHC), health posts and dispensaries, where microscopy is not readily available. This is supported by the integrated management of childhood illness strategy, which encourages presumptive anti-malarial therapy for children below five years. This has drawbacks, which include misdiagnosis, delayed management of childhood febrile illness of non-malaria aetiology, and childhood mortality.

As access to accurate diagnosis and Artemisinin-based combination therapies (ACT) close to home will reduce malaria-related deaths, especially among children, malaria rapid diagnostic tests (mRDT), which make parasite-based diagnosis possible where microscopy is unavailable, have the potential to be a key component of community case management of malaria. Furthermore, parasite-based malaria

‘Malaria exerts a huge social and economic burden on families, communities, and the country, causing an annual estimated loss of ₦132 billion.’

National Malaria Control Programme

diagnosis at the community level will also serve as the first step toward better management of non-malarial causes of febrile illness, some equally life-threatening. Early and accurate diagnosis of malaria followed by prompt treatment reduces the risk of severe disease in malaria-endemic regions like Nigeria.

With the current policy of using ACT as first-line therapy for malaria, there is an increasing need to confirm malaria before treatment in order to limit overuse of ACT, reduce programme costs, reduce drug pressure and delay emergence of resistance to ACT. Currently, the mainstay of malaria diagnosis is microscopy, but this is often not available or feasible at LLHF in resource-limited settings such as Nigerian villages and communities, due to cost and lack of skilled staff, accessories and reagents.

Project rationale

Rapid diagnostic testing for malaria is being promoted by the NMCP, its state counterparts and other implementing partners, through the Global Fund mechanism and United States Presidential Malaria Initiative through USAID. The test has high sensitivity and specificity in detecting malaria infections and is easy to use.

This research was conducted in response to the NMCP target of ensuring “at least 80% of fever patients above five years attending health facilities receive a diagnostic test for malaria by 2013”. It aimed to collate evidence on the acceptance and use of mRDT in the community and identify community acceptable distribution system(s). In addition, it documented concerns by users, and provides relevant information that will inform any potential scale up of mRDT use.

In several parts of Nigeria, it has been reported that individuals either access services from the public health facilities, visit patent medicine vendors (PMV) for over-the-counter drugs or self-treat using local herbs and medications.[6,7,8] Presumably, this is the trend in the Local Government Areas (LGA) of Anambra State proposed for the implementation of this pilot project. More often than not, diagnosis is not clinical and largely presumptive, resulting in poor treatment practices. To date, the distribution and availability of mRDT and ACT have been irregular; and in many instances, not readily available, even in rural areas.[9]

The ICRAM project, implemented by Christian Aid partners with technical support from EFMC, sought to demonstrate the feasibility of reducing presumptive diagnosis and over-treatment of malaria at the community level by deploying mRDTs to lower-level facilities. To show impact, there have been baseline and endline evaluations at the beginning and end of the 12 month-project.

This pilot project had the potential to change anti-malarial prescription practices from presumptive to targeted treatment of malaria and to improve diagnostic capacity in communities in the absence of skills and technology for microscopic diagnosis of malaria. It also aimed to contribute to one of the broad objectives of the Anambra State Annual Operational Plan for Malaria of expanding access to, and use of effective diagnostic and treatment services while being useful for the state in planning and mobilising resources for malaria response.

Below: ICRAM project visit to the Anambra State Malaria Control Programme.

Purpose and objectives

Purpose

To establish the value of a combined approach to malaria management (mRDT, ACT and LLIN) at service delivery points which seeks to reduce the burden of malaria on the poor and vulnerable households in Anambra state.

Objectives

- To demonstrate the feasibility of mRDT use at the community level by PMV and LLHF within one year
- To increase acceptance and uptake of mRDT among health workers in LLHF and PMV and the general population in target communities
- To demonstrate effective linkages between mRDT, ACT and LLIN in malaria programming in intervention communities over one year
- To explore sustainability options among people and communities most vulnerable to malaria and their willingness to demand effective diagnosis, treatment services and procurement of nets after the project ends.

Expected outcomes

- Reduction in presumptive diagnosis of malaria and improved management of malaria in target communities
- Increased demand for, access to and uptake of effective diagnostic and treatment services (mRDT and ACT) by target community members
- Strengthened capacity of communities to advocate for increased resources for effective malaria prevention and treatment services and constructive engagement with duty bearers.

Strategies

- Advocacy, communication and social mobilisation at community, local government, state and national levels
- Deployment of mRDT to LLHF and PMV in project communities
- Capacity building of Christian Aid partners, HCW and PMV
- Capacity building of community agents and community development committees on advocacy
- Monitoring, mentoring and supportive visits

Study methodology

Evaluation design

The ICRAM project was evaluated using a mixed method of both quantitative and qualitative approaches to explore knowledge, attitudes, practices and beliefs on community management of malaria. A two-stage sampling strategy was employed in the quantitative aspect.[10] Qualitative methods included focus group discussions (FGD) and key informant interviews (KII) to enrich the outcomes from the quantitative component, with purposive sampling[11] employed in selecting a sample of the study population. The evaluations were conducted prior to commencement of the project (baseline) and post-intervention to assess the impact of strategies/interventions (endline).

Project population

This project was conducted in two LGA in Anambra State – Aguata and Ihiala. Four communities were randomly selected from Aguata LGA (Oraeri, Uga, Achina and Nkpologwu) and four from Ihiala LGA (Ezieani, Mbosi, Uzoakwa and Isieke) to give a sample of eight intervention communities.

Ethical considerations

Ethical approval to conduct this pilot study was obtained from the National Health Research Ethics Committee (NHREC), Federal Ministry of Health, Nigeria, on 19 June, 2013 with approval number NHREC/01/01/2007-13/06/2013 (see annex).

Prior to data collection, the nature of the study was thoroughly explained to each person who was invited to participate. Information shared with the participants included the title and purpose of this study, the data collection methods, steps to be taken to ensure anonymity and confidentiality of participants and how the data would be used to provide evidence that may improve management of malaria in Nigeria. They were also informed of their rights to opt out of the study at any time. Those that agreed to take part in the study were asked to append their signature or thumb print as evidence of their consent.

The participants were also informed that confidentiality would be maintained by not divulging any personal information obtained during the interviewing process to a third party, as data would be captured in an anonymous and delinked manner. Similarly, participants in the FGD and KII were informed that suggestions they offer which are relevant to this study would be included in the final report in the form of anonymous quotes.

Data collection

The **KAP questionnaire**, adapted from Hansen et al (2013),[12] Anh et al (2005)[13], National Population Commission, NMCP and ICF International (2012)[14] and National Population Commission and ICF Macro (2009)[15], was administered to 1200 adults. The 1200 adults

Below: Focus group discussions explored awareness of malaria and health-seeking habits

were randomly selected from a total of 778 households at baseline evaluation (435 households in Aguata and 343 households in Ihiala) and 856 households at endline evaluation (521 households in Aguata and 335 households in Ihiala).

Routine facility data was also collected from the PHC facilities located in the selected communities from the NMCP Federal Ministry of Health daily diagnosis, preventative and treatment services provision register. At baseline, data was for six months prior to the commencement of the project. Following the commencement of the intervention phase and subsequently the training of PHC and PMV workers on case management of malaria and testing protocols for mRDT, data was collected throughout the project from both PHC and the PMV (prospective data).

Focus group discussions were conducted to gain in-depth understanding and explore awareness of malaria and health-seeking habits before taking anti-malaria medication. Two FGD, one each for men (15-59 years) and women (15-49 years), were conducted in each randomly-selected community. Purposive sampling[12] was used to recruit eight to ten participants per FGD at both the baseline and endline evaluations. A total of 32 FGD were conducted.

Key informant in-depth interviews were also used to assess barriers to diagnosis and treatment of malaria, and acceptability and usability of mRDT among opinion leaders, healthcare workers (HCW), PMV, attendees of health service points (LLHFs and patent medicine stores) and caregivers. These were also conducted at both the baseline and endline evaluations; 131 interviews were conducted in total.

Below: A map of Nigeria with Anambra state highlighted.

Below: Anambra state.

Key findings

Knowledge of causes, symptoms and prevention of malaria

- A good proportion of respondents in both LGA know what malaria is (about 97% at both evaluations).
- At baseline, fever (80% in Aguata, 58% in Ihiala and 68% in both LGA) and head/body ache (77% in Aguata, 75% in Ihiala and 76% in both LGA) were the most commonly identified symptoms of malaria. At endline evaluation however, the proportion of respondents in both LGA who identified fever, chills, sweating and vomiting as symptoms of malaria increased from 68% to 76%, 26% to 29%, 26% to 29% and 13% to 72% respectively.
- Regarding the causes of malaria, 79% of respondents in both LGA stated that mosquitoes are the main cause of malaria at baseline and 80% at endline. The respondents also misidentified flies, dirty water, ghosts, fried foods, stress and the weather as causes of malaria.

Malaria treatment-seeking behaviour

- At baseline, the highest proportion of respondents (44% for Aguata, 57% for Ihiala and 51% for both LGA) would visit a pharmacy or chemist first for treatment. This gave credence to a known fact that presumptive treatment of malaria is widely practised as PMV were not conducting malaria tests at that time. At endline however, following capacity building of HCW and PMV, as well as provision of mRDT at PMV, reduction of stock-outs due to advocacy, and popular malaria education, there was a change in Aguata, with more respondents stating that they would visit a government hospital or PHC, although, generally, a higher proportion of total respondents reported that they would still visit PMV. There was no significant change for respondents from Ihiala LGA**.**
- More than 89% of respondents stated that malaria is treatable, with an increase in Aguata (from 89% to 93%) and both LGA (from 93% to 97%).
- Generally, most of the respondents in both LGA (65% at baseline and endline) reported use of tablets as the preferred method for malaria management, ahead of drips, injections and other methods.

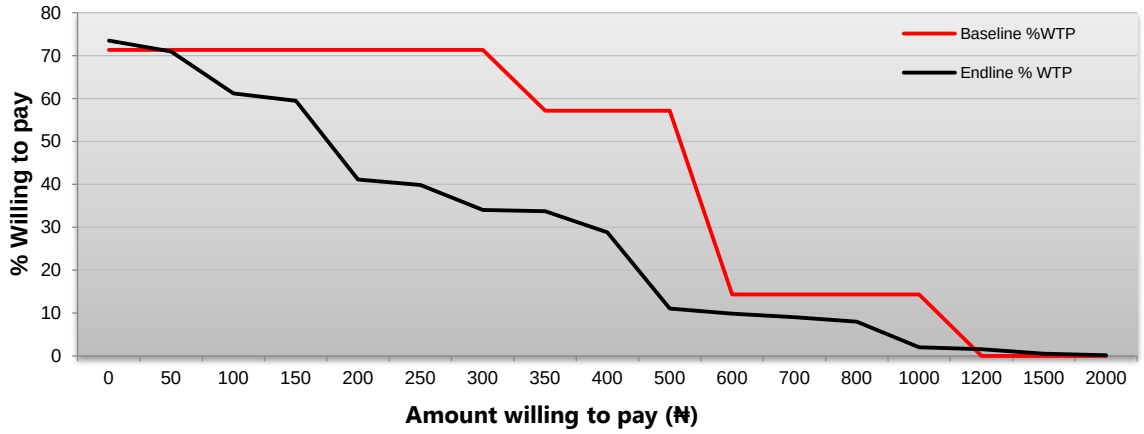
Opinions and preferences for malaria education

- The highest proportion of respondents (64% at baseline and 56% at endline) stated that they would prefer malaria educational material to be presented on the radio, ahead of home visits, public meetings, television and posters respectively.
- A vast majority of the respondents (87% at baseline and 91% at endline) stated that they prefer malaria education messages in the Igbo language, which is a native language of the interviewed participants.

Ownership and willingness to pay for mosquito nets

- About seven out of ten respondents in both LGA own at least one mosquito net.
- About 66% of respondents (71% in Aguata and 63% in Ihiala) stated that non-availability of mosquito nets was the main reason for their not owning them, with not liking to use nets being the next highest reason.
- About 71% of respondents in both LGA are willing to pay between ₦50 (19p) to ₦200 (75p) and not more than ₦1,000 (£3.75) for mosquito nets.

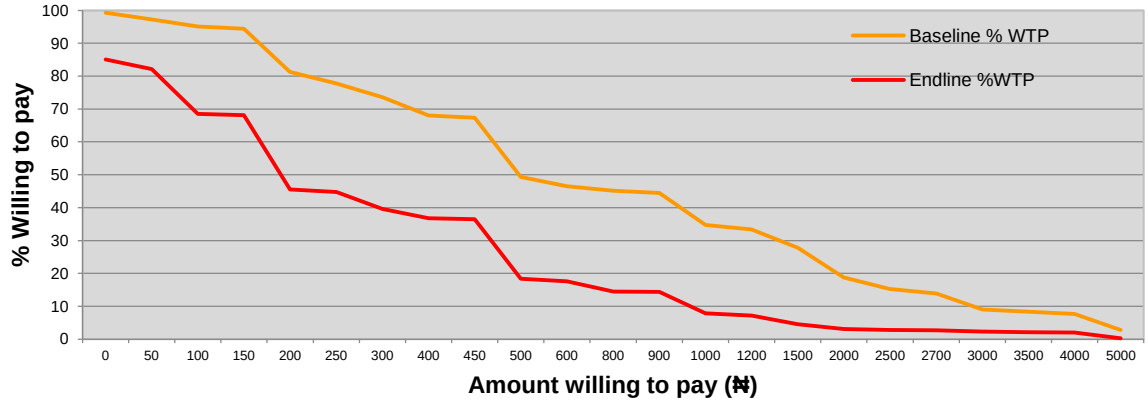
Figure 1: Willingness to pay for mosquito nets



Willingness to pay for malaria testing

- Generally speaking, people's willingness to pay for malaria testing decreases with increasing cost. However, in the baseline for this research, nearly 100% were not willing to pay. This had reduced to 85% at endline, indicating that 15% of respondents were willing to pay something for the test after the intervention.

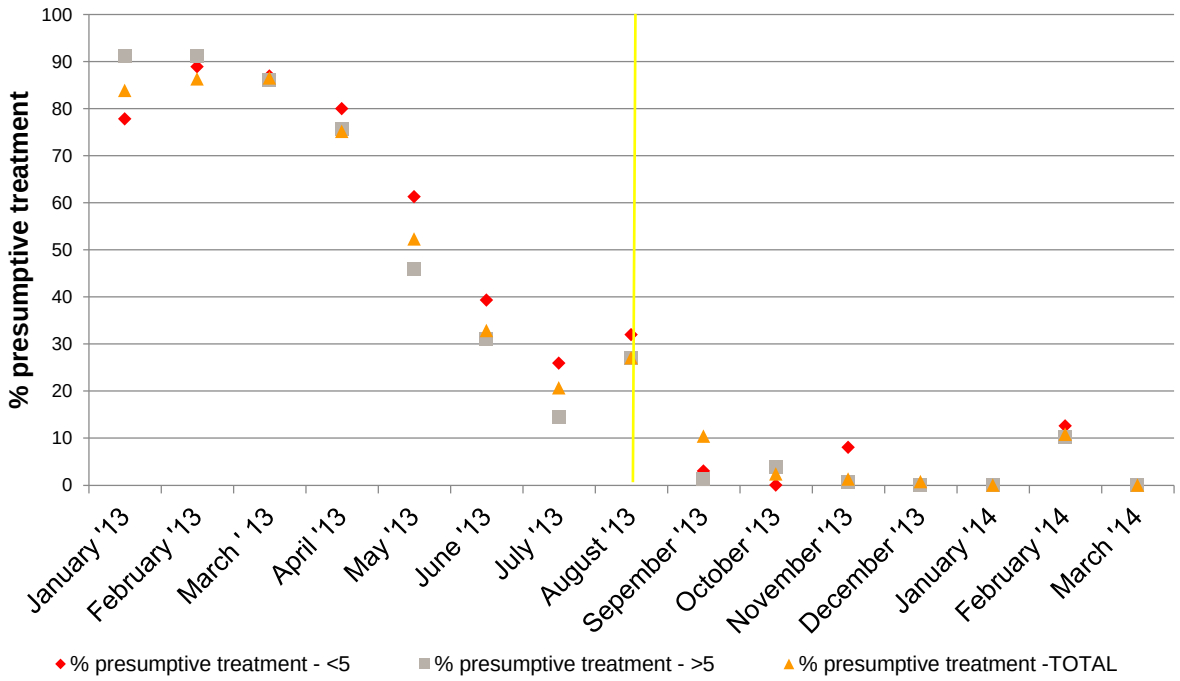
Figure 2: Willingness to pay for mosquito nets



Changes in presumptive treatment of malaria: facility data

- In most of the selected PHC in both LGA, presumptive treatment of fever patients was widely practised in the six-month period preceding the pilot ranging, from 84% (January 2013) to 33% (June 2013). Reasons given by facility staff included non-availability of mRDT, frequent stock-outs and outright requests for malaria drugs by patients on presentation with fever. Following the intervention, results showed a marked reduction in presumptive treatment ranging from 10% (September 2013) to 0% (March 2014).

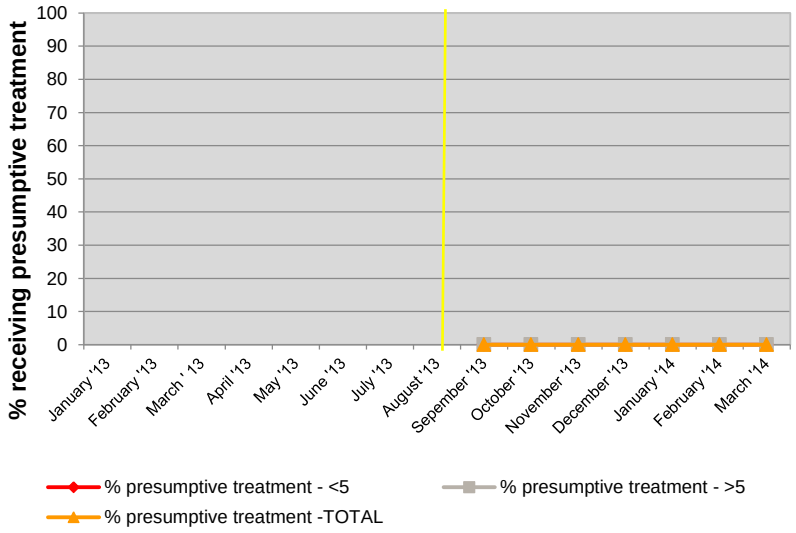
Figure 3: Presumptive treatment among PHC attendees (both LGA)



- In the selected PMV, no baseline data exists. They do not usually keep records of clients treated. Empirical evidence showed that they do not usually conduct any form of test before dispensing anti-malarial medicines to clients presenting with fever. We can only estimate that presumptive treatment for malaria in the six-month period (January to June 2013) preceding the pilot was 100%. However, prospective data was collected following training, provision of mRDTs and routine data collection tools. As shown in the figure below, presumptive treatment of malaria in the participating PMV was 0% during the intervention period (August 2013 to March 2014). The potential for engaging PMV to providing malaria testing at the community level has been demonstrated here. Most community members patronise the PMV as their first point of call when ill and see them as easily accessible and more cost effective than the health facilities. They mostly go to the health centres when their condition deteriorates. This clearly shows that if PMV are trained

and provided access to mRDT, they can improve the accuracy of malaria diagnosis and think of other management options if the test is negative. They can also contribute data to the state malaria control programme if provided with data tools and defined reporting channels.

Figure 4: Presumptive treatment among PMV attendees (both LGA)



Pictures below: ICRAM offers training to health workers and patent medicine vendors.

Reported changes attributed to the ICRAM project

Renewed trust in PHC

"There has been a great change since this system came. We now go to the health centre for treatment. We don't fall sick from malaria, as it used to be – it has been long since my children and I had malaria."

Female FGD participant, Oraeri, Aguata

"There have been some changes. There is improvement in the flow of clients. Awareness has been created because turnout is now more than before. As we counsel them, they continue to believe us and they continue coming, insisting that we should give them result sheets."

HCW, KII, Uzoakwa, Ihiala

"Before now, the chemist is the closest place we go to. But since we found out the new thing going on in the health centre, we don't go anywhere else. If you go to the health centre now, you will be tested free of charge, given drugs free of charge."

Religious leader, KII, Achina, Aguata

"The ICRAM project tried a lot in the community, especially this pilot community. First, there was an increase in the demand for ACT. Secondly, they helped us at least to confirm that the quantity of drug given to facilities was not enough, and that helped us to increase the quantity. Then, there are other things: materials used in diagnosis – ICRAM helped to supply it to the facilities, and monitoring too. Some of the facility workers at times, they have a nonchalant attitude or they are not always at work. When ICRAM came in, through their monitoring and supervision, there was an increase in attendance of health workers – they are always there, there is also quality data management."

HCW, KII, Aguata

"If it starts [malaria], I go to the health centre, because they it treat properly."

Male FGD participant, Mbosi, Ihiala

Malaria education

"They have taught about malaria."

Male FGD participant, Mbosi, Ihiala

"They have contributed a lot. They have been going from house to house talking about malaria and checking for nets. Some of the people said they were told to go for a malaria test at the health centre if they had malaria. There is a device used for testing malaria if you have fever. If the result shows positive, they would be given malaria drugs as treatment. There is no contribution I know they have given that is greater than this."

Woman leader, KII, Achina, Aguata LGA

"The diagnoses and even attacks of malaria have reduced since they have been coming. If you diagnose and you know when to treat, you advise also and give some health education."

HCW, KII, Uzoakwa, Ihiala

"Yes, it changed. It changed due to the education they gave us about what causes it [malaria] and how to prevent it, since then everybody has been maintaining that and malaria illness has been reducing."

Caregiver, KII, Eziani, Ihiala

"The change is that since the programme started, people that didn't cover their drums and water containers, especially large rainwater containers, now cover them because that is where mosquitoes breed and multiply."

Female FGD participant, Oraeri, Aguata

Presence of commodities at PHC

"Yes, there are changes. I know what malaria is about and how to prevent and treat it. Once I notice it, I go direct to the health centre for a test and treatment."

Male FGD participant, Ezieani, Ihiala

"Since ICRAM came, I don't have stock-outs and they gave me mRDT products so I don't have stock-out. If ICRAM is present every day, the drugs won't run out in my place. I have everything now, and if they are present always, things will be better."

HCW, KII, Achine, Aguata

"There are many changes. Before in the health centres, you could hardly see drugs and mRDT kits. Now ICRAM and ADONHACDC have started the programme, everything is under normal control because the health centres changed when they started their programme."

Community leader, KII, Eziani, Ihiala

"The supply is now more frequent than before and the number of items supplied increased by almost 50%. If they've been supplying us maybe 20 nets a month, they now give us maybe 30 nets a month."

HCW, KII, Uzoakwa, Ihiala

"Before now, we don't have drugs at the health centre, but now we do. Once we notice malaria, we go to the hospital and we get treatment immediately."

Male FGD participant, Ezieani, Ihiala

"Change is there. Government is assisting health centres to prevent and treat malaria amongst people."

Male FGD participant Ezieani, Ihiala LGA

Change in health-seeking behaviour

"It's been six months since they started this programme, [and things are] quite improved. Before they drank collected drugs without diagnosis, now they can accept drugs with diagnosis."

HCW, KII, Uzoakwa, Ihiala

"The change is that many people now understand it is good to do a test for malaria before taking drugs, unlike previously. Whenever they noticed a symptom like fever, they thought it is malaria. So many understand it is good to do the test, so they know the particular drug to take to reduce the sickness."

PMV, KII, Achina, Aguata

"One of the things I've noticed is that before someone takes a drug, he/she would go to the health centre first for a check-up."

Community leader, KII, Achina, Aguata

"One of the changes is that the drug we give to them is free. We don't combine drugs, we use ACT drugs to treat malaria."

HCW, KII, Uzoakwa, Ihiala

"Yes since the visit of Christian Aid, I think I will give the community kudos; they have been turning up for the test. Nobody is dragging cold feet again because they saw what happened the day Christian Aid came here to enlighten both the staff of primary healthcare Mbosi and the community. They all saw what happened and how the positive ones were treated, so they themselves now request RDT test before treatment."

HCW, KII, Mbosi, Ihiala

Improvement in facility efficiency

"Since the inception of ICRAM project, they have been assisting the PHC so much. They provide mRDT whenever it is lacking in the health facilities. They even do advocacy to the state RBM (Roll Back Malaria) office if there is a commodity stock-out in most of the PHC in the LGA."

HCW, KII, Uli, Ihiala

"Since ICRAM started, I don't lack drugs – they bring them and they also visit and the thing that gladdens me is that the doctor comes to visit and asks how we are doing. We are happy he comes. For the health centres, this upgraded their reporting and returns for the monthly report because, when they come, corrections are made on what isn't done well during the meeting. It helped them to do well in their report and everything. So they helped a lot."

HCW, KII, Achina, Aguata LGA

"Since we have started doing the RDT test so many people that didn't even know that they can go to the health centre and do some tests immediately and get their result are now aware they can. They know that it is better to treat malaria when you are sure you have it, not go to the chemist shop and tell them to mix drugs for you without knowing whether you have malaria or not. And then it also helps us because when you diagnose and you are sure, you give them the complete dose and treatment."

HCW, KII, Uzoakwa, Ihiala

Increase in patient flow

"Since ICRAM came in, the office is always filled. People come in mass to test for malaria – so the change is much, it isn't a little change."

HCW, KII, Achina, Aguata

"It's a rural area so when you treat somebody, if you do a test and give the ACT based on the RDT test, the person will help us to create awareness, saying 'go to primary health centre Mbosi, get your self tested and get the free ACT drug'. So the flow of patients based on that is very, very encouraging."

HCW, KII, Mbosi, Ihiala

Implications for malaria programming, policy and practice

The pilot project was an attempt to demonstrate a holistic and combined approach to malaria control among vulnerable groups probably deficient both in knowledge and purchasing power. Malaria control programmes in Nigeria use vertical approaches to deliver interventions, thereby losing the synergistic effect of more combined and holistic approaches. It is common to see programmes focusing on single aspects, such as malaria treatment with ACTs, bednet distribution and use, indoor residual spray, malaria rapid diagnostic test, or community advocacy and campaigns, resulting in communities having certain services without the complement of other approaches.

In choosing the location for this pilot, we set out to test the effect of annexing mRDT to existing programmes to create both a controlled and attitudinal change effect among the benefitting communities. The Anambra State Malaria Control Programme already provides ACT to primary healthcare centres and has been supported by SuNMaP to provide mRDTS, albeit with attendant logistical challenges. Also, Christian Aid and its community development and advocacy partners in Anambra State were in the last stages of implementing a bednet distribution programme (Nets4Life®) and monitoring use within the period of this pilot. This project brought these approaches together and used community agents for awareness and demand creation while the supply was being strengthened at the facilities.

Another important highlight of this project is the involvement of patent medicine vendors (PMV) as malaria control partners in the state. Even though they work for profit, many people still prefer their services for reasons ranging from convenience to their fast and courteous service. They often sell different types of malaria drugs to people presenting with fever, without diagnosis, leading to poor self-treatment practices. Many of the cases that are not malaria later end up in clinics and hospitals as advanced diseases, with complications and sometimes permanent conditions as a result. The participating PMV were trained in common malaria symptoms, diagnosis using the mRDT, prescribing and dosing of anti-malarial medicines and referral. They were subsequently supplied with mRDT and given incentives for the extra time taken to test each feverish client.

Malaria is a known and common phenomenon in the communities surveyed, with 97% effective knowledge across all population sub-types. The respondents clearly identified what causes malaria, with few outliers who identified flies, dirty water and ghosts as possible causes; these are subjects for community education. Able to identify malaria symptoms, these communities are well aware when someone has malaria or an ailment that can be suspected as malaria. This presents an opportunity to immediately scale up programmes that introduce correct diagnosis and treatment approaches at all lower-level health facilities including PMV. This is premised on the finding that more than half of people will visit PMV when they have fever, while only 10% will visit a clinic or hospital.

‘We set out to test the effect of annexing mRDT to existing programmes to create both a controlled and attitudinal change effect among the benefitting communities.’

About 67% of respondents in both LGA (72% in Aguata and 61% in Ihiala) had received malaria education messages in any form in the four weeks preceding the survey at baseline, these included media activities of the State Malaria Control Programme and other partner malaria education activities. This increased slightly to 68% (71% in Aguata and 65% in Ihiala). 83% of those who had received messages were through radio programmes while 14% (Aguata: 13%; Ihiala: 15.8%) were reached through public meetings with health staff. The proportion of those receiving malaria messages through contact with health staff increased to 21.4% (Aguata: 9%; Ihiala: 35.9%) at endline. Even though we did not assess the efficacy of each message portal, it will be important to continue to engage these communities with town hall and advocacy meetings for malaria education to increase penetration in a quality manner, while radio and TV adverts continue to create a mass effect. During such sessions, participants should be able to receive messages in their preferred language, ask questions and get clarifications, which are not possible with radio or TV adverts.

As an outcome of the Nets4Life® project, 80% of households in Aguata and 70% in Ihiala owned at least one treated bednet and 43% of households owned two nets. Information on their use is captured in a separate Nets4Life® report. 65% of those who did not own a bednet cited non-availability as their reason, 22% simply did not like to use nets while 7% said that they are too expensive. Bednets distribution programmes will need several rounds of mop-up activities to ensure more households are protected. The diffusion effect may protect the very few households that may not have or are not using nets.

Most of the respondents were not willing to pay for mosquito nets since they are available free from health centres and perceived as expensive. Those willing to pay will buy them for ₦200 (75p) and not more than ₦1,000 (£3.75). This indicates that if there is ever any chance that free nets will cease to be available, there should be plans in place to produce low-cost treated bed-nets and introduce them into the market to gradually change the culture.

With a tendency to take and prescribe presumptive treatment for malaria at the household, community and health facility levels, testing and diagnosis are not common. All respondents who had had malaria episodes in the previous six months were not willing to pay for a test. They opined that the test should be free as incomes are low and people are not willing to pay extra for malaria testing. Most of those that eventually conceded they would consider paying would be willing to pay between ₦100 and ₦200 (38-75p). This is not surprising as respondents felt satisfied with their choice of treatments and a test is seen as an extra process and cost that may not add value to the treatment. This is potentially of concern; communities need to be educated on the dangers of misdiagnosis, mistreatment and drug resistance issues. As much as possible, mRDTS should be freely and readily available at no cost at government hospitals while a marginal cost can be established at the PMV. There is a strong need for training, value reorientation and integration of these PMV into mRDT programmes as most households still patronise them for management of fever.

Below: ICRAM partners demonstrate how to use a long-lasting insecticide-treated net.

Recommendations

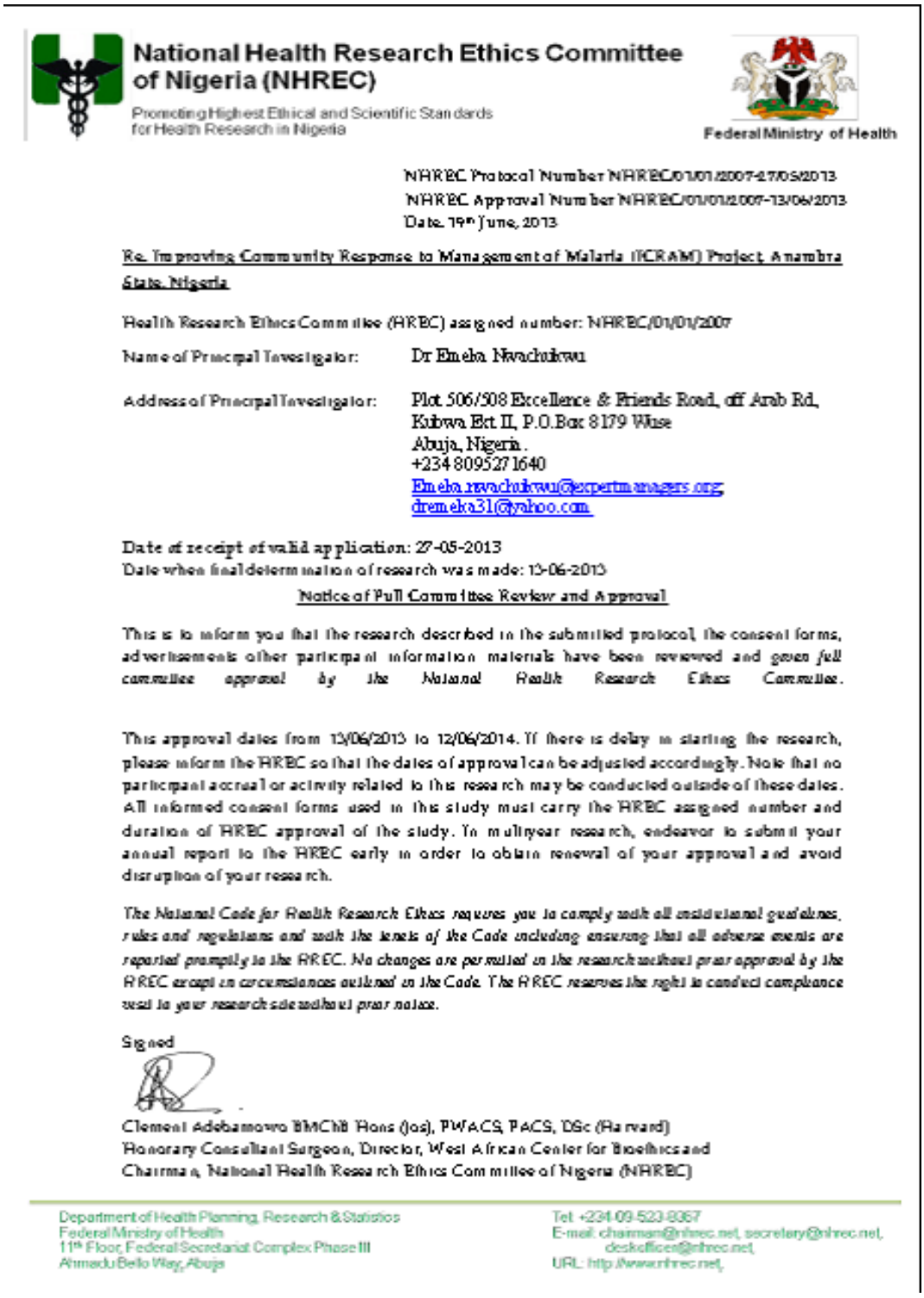
- Programme planning should take into account the socio-economic demographics of the recipient communities to maximise reach and impact. These considerations will help tailor messages and provide services that conform to their established norms and thereby will be readily accepted.
- Distribution programmes for ACT, mRDT, and LLIN to facilities and communities should be followed up with strong logistical support and monitoring. With incessant stock-outs of ACT and/or mRDT, malaria control programmes will be ineffective.
- Programmes should engage PMV to help reach more communities, localities and households where government health facilities are either not present or not efficient. PMVs should be trained and frameworks developed on their engagement and involvement in malaria control programmes. They are located within walking distance from communities and households and community members trust them to provide care, which should both be supported and streamlined to follow acceptable guidelines.
- Malaria treatment policies may need to be revised to provide for compulsory testing, especially for children and pregnant women, at LLHF. Morbidity and mortality are higher in these facilities and populations when other feverish illnesses are mistreated as malaria.
- Healthcare providers at all levels should be educated on the importance of testing for malaria in every fever case before administering anti-malarial medicines. This will help develop the culture of testing and also make the clients demand these tests when they do present with fever, more so with the availability of rapid tests.
- There is a real need to constantly train, retrain and mentor facility staff on populating information that feeds into the National Malaria Control register as most information captured in it is still vague and incomplete. This was noticed during this pilot project and efforts were directed at building the capacity of the staff working in the selected project facilities.

‘Healthcare providers at all levels should be educated on the importance of testing for malaria in every fever case before administering anti-malarial medicines.’

Below: ICRAM partners provide community outreach in Anambra State.

Annex

Figure 5: **Ethical approval to conduct ICRAM project research**



National Health Research Ethics Committee of Nigeria (NHREC)

Promoting Highest Ethical and Scientific Standards for Health Research in Nigeria

Federal Ministry of Health

NHREC Protocol Number NHREC/01/01/2007-27/05/2013
NHREC Approval Number NHREC/01/01/2007-13/06/2013
Date. 19th June, 2013

Re. Improving Community Response to Management of Malaria (ICRAM) Project, Anambra State, Nigeria

Health Research Ethics Committee (HREC) assigned number: NHREC/01/01/2007

Name of Principal Investigator: Dr Emeka Nwachukwu

Address of Principal Investigator: Plot 506/508 Excellence & Friends Road, off Arab Rd, Kubwa Ext II, P.O.Box 8179 Wuse Abuja, Nigeria. +234 8095271640 Emeka.nwachukwu@expertmanagers.org; dremeka31@yahoo.com

Date of receipt of valid application: 27-05-2013
Date when final determination of research was made: 13-06-2013

Notice of Full Committee Review and Approval

This is to inform you that the research described in the submitted protocol, the consent forms, advertisements other participant information materials have been reviewed and given full committee approval by the National Health Research Ethics Committee.

This approval dates from 13/06/2013 to 12/06/2014. If there is delay in starting the research, please inform the HREC so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study. In multiyear research, endeavor to submit your annual report to the HREC early in order to obtain renewal of your approval and avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the HREC. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code. The HREC reserves the right to conduct compliance visit to your research site without prior notice.

Signed

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