RWANDA BIOMEDICAL CENTER

A Healthy People. A Wealthy Nation

Rwanda case study:

Distributing insecticide-treated nets (ITNs) during the COVID-19 pandemic

I. SUMMARY

Key enabling factors for continuing the mass campaign during the COVID-19 pandemic

- **Functional network of Community Health Workers (CHW)** that allowed the campaign to continue even during the pandemic. CHWs were responsible for the transport of ITNs from health centre to communities and their distribution to households. Initially, in 17 remaining districts of 30 that were not covered with ITNs prior to the onset of COVID-19, the Rwanda Biomedical Centre (RBC) had planned to use 5,332 CHWs working from 1,333 fixed distribution sites but with the onset of COVID-19, a total of 32,505 CHWs were deployed to support the implementation of the campaign using a community-level distribution strategy.
- **Leadership commitment and coordination** from the Government of Rwanda and partners to ensure that ITNs reached targeted households. Partners came together to ensure that there was a seamless distribution of ITNs. Transportation of ITNs was carried out by RBC through Rwanda Medical Supply/Rwanda National Police for ITNs from the Global Fund and by the Global Health Supply Chain Programme/Procurement and Supply Management (GHSC-PSM) for ITNs from the US President's Malaria Initiative (PMI). Storage and coordination of ITN transport from central level to health centre was headed by the Rwanda Medical Supply, the planning and coordination of the campaign was led by the Malaria and Other Parasitic Disease Division (MOPDD)/Rwanda Biomedical Centre while the distribution of ITNs to households was the responsibility of district hospitals and health centres through the CHW network.
- **Flexible funding sources** allowed for adaptation of the implementation approach to the COVID-19 context. The campaign strategy shifted from fixed site distribution to door-to-door distribution through the network of CHWs. The change in strategy required additional budget to cover the incidentals for all CHWs. This allocation of additional funds enabled distribution of ITNs to all targeted households.

Achievements

- **Coverage of all targeted households**. The number of nets distributed was 103.7 per cent of the original target population from macroplanning, while the administrative coverage rate of households who received ITNs was 97.1 per cent. Health centres used the updated list of households that shows the exact number of persons per household as well as the number of sleeping spaces, to make decisions on rounding up or down for households with an odd number of people, e.g. households with five members but two sleeping spaces, would receive two ITNs, while households with five members but three sleeping spaces, would receive three ITNs. There were considerably more cases of rounding up, thus contributing to the six per cent difference between ITNs distributed compared to the number of households reached with ITNs during distribution.
- **Successful completion of the campaign with COVID-19 prevention measures in place** e.g. virtual meetings with local leaders, more training sessions with fewer participants, etc., as well as timely procurement and availability of personal protective equipment (PPE).

Lessons learned and recommendations

- **There is a need to have a strategy for supervision for door-to-door distribution through community health workers.** Though the CHW structure allowed for rapid strategy adaptations while maintaining high accountability for ITNs and effective use of resources, it was difficult

to comprehensively supervise the 32,505 CHWs implementing the campaign. Future campaigns should focus on ensuring that a supervision structure is put in place to allow for greater oversight of and ability for corrective action during door-to-door distribution.

- **Use of mobile money (via MTN) to make payments to campaign implementers** led to various challenges where in some cases the number and identity of the registered numbers did not match the individuals working in the campaign. Verification of the mobile phone numbers of campaign workers should be done with MTN prior to the campaign to ensure that campaign workers are registered and identification details are checked for timely payments.
- **Late delivery of ITNs** to the health centres and distribution to the community during COVID-19 resulted in 26 out of 30 districts being covered according to the original planned distribution dates. Distribution was completed in the other four districts in November 2020. RBC conducted physical inspection of all ITNs delivered according to ISO 2859-1, national ITN specifications and inspection guidelines, which caused delay in the delivery of the ITNs to health centres.
- **Low participation by the community** during the first days of the campaign prior to COVID-19. This was when distribution was via fixed distribution points and the low participation resulted in distribution not being completed within the planned five days. Distribution through CHWs was extended after the campaign period in order to increase ITN coverage. It is recommended that in future more time is allowed for campaign preparation and more time (10 days) is allocated for community sensitization to ensure the population receives information in advance of the campaign. This was less of a problem with the door-to-door distribution adapted to the COVID-19 context since the CHWs met household members in their homes.

II. CONTEXT

The Malaria and Other Parasitic Disease Division/Rwanda Biomedical Centre (RBC/MOPDD) originally planned a national mass ITN distribution campaign in two phases during February—March 2020.

ITN procurement was based on projected population for the year of the campaign based on updated CHW figures from the long-lasting insecticidal nets (LLINs) needs assessment of households divided by 1.8. The RBC/MOPDD shifted from procuring the conical nets preferred by most Rwandans to procurement of less costly rectangular nets for the 2020 campaign based on technical requirements of funding partners. Specific to the Rwandan context, all ITNs undergo inspection and clearance upon arrival in-country.

ITNs procured

	US President's Malaria Initiative (PMI)	**Global Fund**
Standard	1,176,922	3,627,453
PBO	1,523,073	
Interceptor G2		1, 200,000
Total	2,699,995	4,827,453
Grand total	**7,527,448**	

PMI ITNs were planned to cover 11 hospital districts, and Global Fund 29 hospital districts.

Rwanda has a very well-developed community health worker (CHW) programme that was established in 1995 with the objective of increasing uptake of essential maternal and child clinical services through education of pregnant women, promotion of healthy behaviours, and follow-up and linkages to public

health services[1]. An estimated 60,000 CHWs operating at the village level provide the first line of health service delivery. There are four CHWs in each village: a male-female CHW pair (called *binômes*) providing basic care and integrated community case management (iCCM) of childhood illness, one CHW in charge of health promotion and a CHW in charge of maternal health, called an ASM (*Agent de Santé Maternelle*).

The Rwanda campaign planning relied on the CHW structure from the outset to ensure accurate quantification of ITN needs, high quality implementation and social and behaviour change (SBC) activities for achieving universal coverage targets with the different ITN types aligned to the insecticide resistance profile in districts throughout the country. In addition to the challenge of implementing a multi-product campaign, Rwanda faced an extra issue in transitioning from conical to rectangular ITNs and ensuring high uptake and use by the targeted population.

Distribution of ITNs took place across 30 districts:

- 13 districts were covered in February—March 2020 before the COVID-19 pandemic using a fixed-point distribution strategy
- 17 districts were covered during the COVID-19 pandemic (11 districts in May 2020 and 6 districts in November 2020) using a door-to-door distribution strategy

Household registration took place in all 30 districts in 2019 and was further corrected for unregistered households or those that had moved by March 2020 (before the onset of COVID-19).

III. THE REVISED STRATEGY

The initial strategy planned for the ITN distribution involved updating the registration of households (needs assessment) that is done routinely by the CHWs six months before the mass distribution of ITNs and ensuring that all households were included, particularly in population groups outside of those targeted for continuous CHW activities. The updated lists were subsequently used at fixed distribution points in the first 13 districts to provide ITNs to households on the basis of one ITN for every two people with no fixed maximum number of ITNs. Distribution points are typically located at outreach sites that are within easy reach of community members.

With the onset of the COVID-19 pandemic in Rwanda, the Government took rapid actions that included restricting the number of people at gatherings, implementing a national lockdown outside essential services, reinforcing infection prevention measures such as physical distancing, respiratory and hand hygiene, and establishing systems for contact tracing.

Using the strong CHW network in place, the RBC rapidly worked with the COVID-19 emergency task force and in-country partners to revise the ITN distribution strategy, with the objective to begin implementation as soon as lockdown restrictions were eased. The revised strategy (for the remaining 17 districts) included:

- Modification from fixed site distribution to door-to-door distribution to be implemented in each community through the local CHWs
- Allocation of resources to allow one CHW, using their existing method of transportation (typically a bicycle), to collect ITNs from the health centres where they were stored to move them to community level for distribution
- Signature on registration forms for ITN accountability, but with adaptations and strong messaging to ensure that no materials changed hands between household representatives and CHWs

[1] Rwanda Ministry of Health. National Community Health Strategic Plan July 2013–June 2018.

The fixed site distribution was initially planned for five days, while the door-to-door approach was planned for three days. To reduce CHW exposure to COVID-19 the number of CHWs was increased to 32,505 for the door-to-door distribution from the initially planned 5,332 who would have worked at fixed distribution points where management of crowding would have been difficult.

Coordination

Rwanda is one of the countries involved in the New Nets Project (NNP) and, as such, was part of the global coordination structure for the project. Weekly calls between the RBC and partners took place for updates on the ITN physical inspection, planned distribution dates and effects of the COVID-19 pandemic. As much as possible all partners, including the ITN manufacturers, worked to ensure sufficient resources were available to move the distribution forward according to the planning, despite the COVID-19 context in the country.

In-country the RBC coordinated with all government entities in planning for the ITN distribution, including the COVID-19 emergency task force. Approvals to implement activities for the ITN distribution were received from the highest levels of government before starting activities.

The RBC hosts a strong coordination structure for malaria activities in the country and this structure was mobilized in support of the strategy discussions and adaptations to ensure full buy-in, as well as to ensure rapid resource mobilization.

Procurement of ITNs, personal protective equipment (PPE) and other commodities

All campaign workers were provided with PPE which included masks. They were also provided with gloves as they were handling ITNs during the door-to-door distribution. The PPE was readily available in Rwanda as the government had procured sufficient quantities for other campaigns that took place prior to the ITN distribution. During household visits the community health workers would request each household to assist them with water and soap for handwashing.

Logistics

Different logistics adaptations took place depending on the level of the supply chain. Generally, ITNs were delivered to the Rwanda Medical Supply warehouses in the capital, Kigali, from where, after

clearing inspection, they were moved directly to health centres, avoiding multiple levels of storage. Transportation was organized through the RBC and GHSC-PSM.

Due to COVID-19, the following adaptations were required:

- On arrival in Rwanda and for physical inspection of the ITNs: given the COVID-19 infection prevention measures put in place, adaptations included (1) ensuring transport waivers for personnel required for the physical inspection, as well as rental of buses, to ensure that they could move from home to the warehouse during the lockdown, (2) renting additional space for the physical inspection to ensure that physical distancing requirements were met and (3) procurement of PPE in compliance with national regulations.
- The major adjustment to the supply chain was the addition of a transport allowance to allow one CHW from each community to collect the ITNs for that community from the health centre where they were stored. As CHWs are provided with bicycles as part of their work package, a transport means already existed with each CHW to perform this task, so no additional procurement for transport was required.
- To ensure accountability for the ITNs, and as per standard practice with health commodities, the health centres specified the number of ITNs to be distributed to each registered household based on the number of its members taken from the community lists. The CHWs distributed the number of LLINs recorded on the list of recipients and recorded the date of distribution as well as obtaining a signature. This list, which also contains details of any additional ITNs found

to be needed and requested by the CHW, is returned to the health centre to ensure availability of distribution data and ITN accountability.

Social and behaviour change (SBC)

Initial SBC planning included development of a concept note providing an in-depth view of the activities that would be implemented during the campaign and finalizing of the SBC budget which was a collaborative effort between RBC, Intrahealth/Ingobyi[2] and the Alliance for Malaria Prevention (AMP). The concept note and SBC budget for pre, during and post-distribution phases were discussed and updated during a two-day meeting.

Social and behaviour change required three major tasks before and after the onset of the COVID-19 pandemic:

1. To ensure that all households knew how to and did access ITNs, particularly given the adjusted strategy for the campaign
2. To ensure that all households had information on how to correctly hang and use their ITNs given the transition from conical to rectangular ITNs
3. To ensure that all ITNs distributed, regardless of ITN type, were used effectively by the targeted households

Ensuring household access involved a multi-prong communication strategy, particularly given the multi-product campaign. Decisions were taken not to communicate about different types of ITNs being distributed at the community level, while information was provided to Ministry of Health officials at all levels from national to district and health centre. The emphasis at the household level was on using the ITNs received.

Ensuring correct hanging and use of the ITNs, regardless of shape and type, required an extensive effort from the RBC and partners. This included development of a net modification demonstration video targeted to households that might prefer conical nets, which aimed at providing guidance to community health workers on how rectangular nets can easily be transformed into conical nets. For the 13 districts where the distribution was conducted before the COVID-19 pandemic, the communication was done through:

- Radio spots
- Informative meetings in cascade with local leaders from the district level, district hospitals, and health centre level, as well as local and religious authorities
- Announcement of ITN distribution through churches, community meetings and markets

For the 17 districts where the distribution was conducted during the COVID-19 pandemic, the communication was done through:

- Radio spots
- Informative virtual meetings in cascade with local leaders from the central level, district level and district hospitals
- Announcement of ITN distribution to households by community health workers and local leaders

Trainings and meetings

Trainings and meetings were modified for the COVID-19 context. All training included COVID-19 infection prevention measures to be followed at each implementation level. Training levels were as follows:

[2] Local name of the USAID/Intrahealth project.

- At the central level, where internet connectivity is good, meetings between the central level and the district administration were held virtually
- District hospitals conducted a number of training sessions for health centre in-charges, with the number of sessions depending on the number of health centres in their catchment area and the maximum number of participants per training in line with COVID-19 measures
- Health centre in-charges were responsible for training of CHWs in their catchment area. Training was around four hours in sessions with a limited number of people
- For training sessions done in person, the number of training sessions was increased, with fewer people in each training session to allow for physical distancing measures to be respected

ITN distribution process

By the time the COVID-19 pandemic reached Rwanda in March 2020, the campaign had been completed in thirteen districts, but then halted. The government recognized the need to revise its distribution strategy for the remaining 17 districts to protect both health workers and communities from COVID-19. Protocols for use of PPE were developed for campaign workers both during physical inspection of nets and during ITN distribution. All CHWs involved in the door-to-door mass distribution received masks and gloves for protection.

Normally community health workers distribute ITNs through fixed and outreach distribution sites, which was the case for the first thirteen districts completed. Communities are called for gatherings in selected sites across districts, and several CHWs are assigned to distribute ITNs to the population in a given health centre catchment area.

The RBC/MOPDD realized that this approach could put communities at risk given potential crowding and opted to change from fixed site to door-to-door distribution. From there, local leaders collaborated with *isibo* (small groups of households in a village with a chief of each group called a *mutwarasibo*) to distribute ITNs village by village. The *isibo* established a distribution schedule for each village, with its chief accompanying the community health workers to organize the distribution door-to-door and ensure respect for physical distancing. Additional CHWs were hired so that they could

complete visits to at least 50 households each. Following a list of ITN requirements by household from the needs assessment (household registration), CHWs requested each head of family to sign to acknowledge receiving ITNs. Households were asked to sign using their own pens to avoid exchange of materials between campaign personnel and household recipients.

Supervision and monitoring

Supervision and monitoring activities were adjusted in line with COVID-19 infection prevention and control measures for the 17 districts that implemented the ITN distribution during the pandemic. Key considerations for supervision and monitoring were:

- Overall good connectivity country-wide allowed campaign managers to use videoconferencing to monitor activities and address bottlenecks
- The government arranged special clearance for team leaders and others to travel from Kigali to the districts during COVID-19 related travel bans for in-person supervision and monitoring
- The health centre in-charges were responsible for supervision but owing to the huge number of CHWs involved in the campaign it was not easy to supervise all the CHWs. The supervisors largely relied on the CHW reports to verify the activities that had been undertaken

Data collection

Data collection was done by the community health workers prior to the COVID-19 outbreak and subsequent lockdown. After the needs assessment in the community, all the forms were brought back to the health centres by the CHWs. Health centre staff analysed and compiled ITN needs identified in each village and sent the report to the district hospital. The district hospital staff compiled all needs in their health centre's catchment areas and sent to the MOPDD. This summary report allowed the MOPDD to identify gaps and prepare for transport of ITNs from the central level and delivery to health centres.

Payments

Payments for the Global Health Supply Chain Programme/Procurement and Supply Management (GHSC-PSM)-supported districts were done using mobile money directly to individual campaign workers. The payment process encountered various challenges, including that some numbers and identity of the registered numbers did not match the individuals working in the campaign. In Global Fund-supported areas, health centres were supplied with funds and then tasked with remunerating CHWs in cash, while ensuring that all payments were appropriately logged. This is a normal method of paying CHWs for many different activities that they carry out

ITN monitoring/ verification process

The ITN monitoring/verification process is currently ongoing (at the time of submission of this report) at the health centres and at the household level. At the health centre the objective is to establish the number of ITNs received and those that were distributed and where they were distributed. For household level monitoring and verification, random names of households are selected from the health centre registers and traced back to the communities. Once the households are traced, the team verifies the number of ITNs received and whether the household is correctly using the ITNs.

Post-distribution activities

Post-distribution activities include:

- CHWs conducting home visits to verify if all the nets are hung and being used correctly. The CHWs have already been provided with guidelines that include malaria messages (both prevention and treatment)
- Community sensitization by local leaders after the ITN distribution with health centres providing oversight of the community sensitization activities
- Training of a non-governmental organization (NGO) in each of the five provinces tasked to implement SBC. The focus of implementation will be on malaria control activities

New types of ITNs were procured for routine/continuous distribution at the same time as for the mass campaign. Health centres were directed to use new stocks of ITNs for routine and continuous distribution purposes. A few health centres had old stock remaining, but those that did were directed to use them for beneficial purposes, i.e. as netting for hospital beds.