Donors of nets can now click on any point and see exactly to whom their net was given and where, providing a new level of transparency and accountability never seen before in net distributions.

HANG-UP AND TRACK

IMPLEMENTATION DATE: October 2014 to December 2014

Increase bednet distribution accountability and usage in households through mobile data collection

Malaria is one of the deadliest diseases in the Democratic Republic of Congo (DRC), where an estimated 500 children under the age of five die each day from this disease. Research has shown that the use of long-lasting insecticidal nets (LLINs) is effective in preventing malaria.[1]

To address malaria prevention through LLIN distribution, IMA World Health, with approval from the Programme National de Lutte contre de Paludisme (PNLP) of the Ministry of Public Health and funding from the Against Malaria Foundation (AMF) and UKAID, kicked off a mass LLIN distribution campaign in eight health zones in Kasai-Occidental province. IMA World Health devised a Hang-up and Track (HUT) campaign in which community health workers (CHWs) not only distributed the LLINs, but they also installed and hung them up in each household and recorded household registration data using smart phones to ensure accountability and accuracy.

About Hang-Up and Track

The LLIN distribution campaign is one cornerstone of PLNP's national strategy to decrease the burden of malaria through prevention by ensuring that all households in the DRC receive and use LLINs.[2] In this campaign, IMA World Health, with LLIN funding from AMF and non-LLIN funding from UKAID, was tasked to distribute LLINs in eight health zones in the western Kasai-Occidental province. In order to increase accountability and household utilization, the strategy devised was to "hang-up and track." The strategy is

two-fold: First, instead of distributing LLINs to beneficiaries, LLINs were hung up and installed in the beneficiaries' households. Second, smart phones were used to track distribution data for each household that received LLINs.

When the LLINs were being installed, one of the CHWs within the team was tasked to track the progress by entering household registration data into a smart phone. Open Data Kit (ODK) software was installed on each smart phone with a form specifically designed for the hang-up. The ODK

Table 1.

Health Zones	Households	Sleeping places	Quality LLINs	LLINs installed
Kitangwa	22,188	54,465	3,796	50,643
Mutena	27,509	67,369	1,265	66,104
Kamonia	39,869	85,491	1,492	83,999
Kamuesha	42,140	99,766	2,242	97,524
Banga Lubaka	16,001	42,229	1,039	41,190
Kanzala	26,966	70,449	1,216	69,233
Tshikapa	37,643	105,474	1,594	103,880
Kalonda	44,317	113,824	1,865	111,959
Total	256,633	639,067	14,509	624,532

form collected distribution data on the number of sleeping places and the amount of LLINs given and installed. But to increase further accountability, the form also asks for the global positioning system (GPS) coordinates, signature of consenting household, and a picture of the LLINs installed. Socioeconomic, malaria perception, and malaria treatment data for each household was also collected. All the data were then uploaded to a supervisor's laptop using ODK Aggregate VM server software, and later aggregated at a central level.

Once the distribution was completed, a table was created that included the name of the head of household, the GPS coordinates of that household, how many nets were distributed to that household, and a photo of the recipient and their newly hung net. All recipients photographed signed a release within the ODK allowing us to use their photo. If they did not wish to be photographed only the net was pictured. The table was then uploaded to Google Fusion Tables and an interactive map was created. Donors of nets can now click on any point and see exactly to whom their net was given and where, providing a new level of transparency and accountability never seen before in net distributions.

Evaluation and Results

The LLINs distribution in western Kasai-Occidental lasted from October 2014 to December 2014. In the chart submitted here, the HUT campaign captured data for each of the visited households. For each household, the ODK form asked the number of sleeping places in the household, which coincided with the number of nets given and installed in that household. However, if there were already good quality LLINs assessed in that household, ODK will automatically calculate and subtract the number of good quality LLINs from number of LLINs installed to avoid giving more LLINs than necessary. ODK will also disallow the CHW to give more LLINs than the number of sleeping places reported. It was estimated that by using the HUT strategy, 93 to 99 percent of households in the eight health zones where LLINs were distributed were reached.

Lessons Learned

- **Infrastructure deficiencies**, especially electricity, need to be assessed before distribution.
- **CHWs need to be thoroughly assessed** due to literacy and lack of technology training.
- **Data analysis needs to be incorporated** into the distribution campaign schedule better due to amount of incoming data.
- Although originally translated the ODK form to local languages and dialects for CHWs, **French was still preferred** because local dialects were often not written languages.
- **Rugged mobile phones** and hardware are recommended.

Conclusion

IMA is the first organization in the DRC to leverage mHealth technology like ODK for mass LLIN distribution campaigns. By using the HUT strategy, not only was each household pinpointed through GPS, but the entire distribution was aggregated visually through GIS. This, along with the signature file and photo of LLIN installation within the household, increased accountability that the LLINs reached the beneficiaries and decreased fraudulent activities. The utilization rate of LLINs by the beneficiaries will be measured every six months to assess user adoption. In the next phase, the malaria perception and treatment data collected will be used to formulate better behavior change communication and messaging, and incorporate that into a more holistic approach in the next LLIN distribution campaign. ■