

ASSESSING THE FEASIBILITY AND COST-EFFECTIVENESS OF COMMUNITY FIXED-POINT BEDNET DISTRIBUTION:

EVIDENCE FROM A 3DE EVALUATION IN RUFUNSA DISTRICT, ZAMBIA



INTRODUCTION

Malaria is a major public health challenge in Zambia, accounting for 36 percent of hospitalizations and outpatient department visits, eight to 14 percent of low birth weight babies, three to eight percent of all infant deaths, and up to 20 percent of maternal mortality.¹ Insecticide-treated bednets (ITNs) are a cost-effective way of decreasing malaria incidence. Consistently sleeping under an ITN has been shown to decrease all-cause child mortality by 17-29 percent, and larger community-wide gains can be realized if a critical number of households utilize ITNs.² In 2014, Zambia was planning to distribute 6-7 million ITNs, but only limited information was available on the most efficient distribution and hang-up approach to optimize ITN ownership and use in Zambia. A door-to-door distribution strategy had been previously used throughout Zambia, but was highly challenging and costly in terms of time, supervision costs, and volunteer work burden. In order to inform decisions about using alternative methods, Zambia's Ministry of Health (MOH) and National Malaria Control Programme (NMCP) requested an evaluation to assess the cost-effectiveness of community fixed-point distribution of ITNs compared to the current door-to-door strategy. An evaluation was conducted in collaboration with the Demand-Driven Evaluations for Decision (3DE) program and World Vision Zambia.

INTERVENTION TESTED

The 3DE evaluation tested an approach that involved distributing ITNs from a pre-defined fixed point in a community such as a clinic, school, or church, with community health workers (CHWs) visiting households after a given time period to hang unused ITNs. In the evaluation, this community fixed-point distribution strategy was tested in three locations in Rufunsa District, using randomized and observational evaluation techniques to measure important indicators such as household attendance, ITN use, ITN retention, and time required.

EVALUATION DESIGN

This evaluation utilized two interventions: The first intervention was community fixed-point distribution of ITNs. All communities in the evaluation received this type of distribution and pre-registration data from a household survey conducted by the Rufunsa District Health Office (DHO) and World Vision was used to determine the households invited to each distribution and number of ITNs allocated for each household. Observational methods were used to measure feasibility of the intervention, particularly through household attendance rates. The second intervention involved door-to-door visits by CHWs to hang up unused ITNs. CHWs were trained on malaria messages, ITN hang-up techniques, and basic data collection methods. The timing of CHW visits ranged from one to 17 days after distribution or no CHW visit at all, and the timing of visits was randomly assigned. CHWs collected data about self-installation at the time of their visit. A household survey was conducted at seven to 11 weeks following the point distributions to measure ITN use and retention rates. 528 households from three communities were included in the analysis.



Sources:

1. National Malaria Control Center. "Malaria Control In Zambia." nmcc.org.zm/malaria_control.htm
2. President's Malaria Initiative (PMI). "Fact Sheet on Insecticide-treated Mosquito Nets (ITNs)" http://www.fightingmalaria.gov/news/press_releases/itn_facts.html

RESULTS

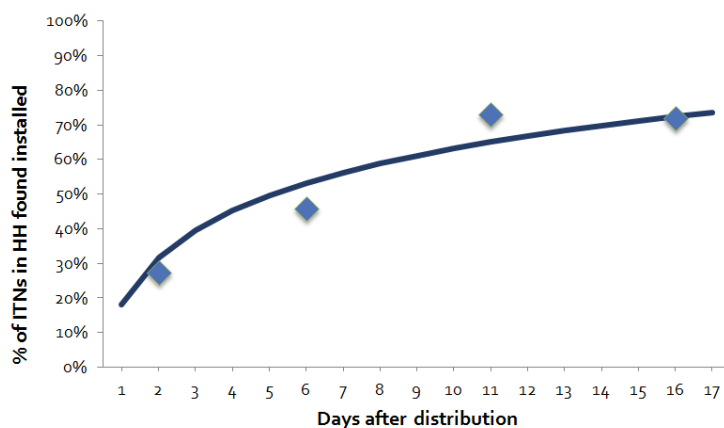
This evaluation indicated that the community fixed-point distributions achieved ITN use and retention rates comparable to a well-run ITN door-to-door distribution while achieving significant time and cost savings. Ninety-six percent of households in the pre-registration survey attended the fixed-point distribution events or sent a representative. At seven to 11 weeks after the distributions, 90 percent of distributed ITNs were found in households and 74 percent of all observed sleeping spaces were covered by an ITN. When volunteers visited households following the fixed-point distributions, many families had already hung their ITNs, saving time and effort on the part of the volunteers. Specifically, 46 percent of distributed nets were self-installed five to seven days after distribution and 78 percent of distributed nets were self-installed 10-12 days after distribution (Figure 1). Based on these results, delaying CHW hang-up visits by 10 days or more could reduce the CHW ITN hanging workload by more than 70 percent. According to a model based on operations in Rufunsa, community fixed-point distribution could reduce the CHW time required by approximately 25 percent. Based on this evaluation and data available from other door-to-door distribution campaigns, it was estimated that using community-fixed point distribution with delayed hang-up for distribution of all ITN in the 2014 mass ITN distribution campaign could reduce costs by almost US\$1 million.

DISCUSSION AND RECOMMENDATIONS

Community fixed-point ITN distribution piloted in Rufunsa District was found to achieve similar ITN retention and usage results as other successful door-to-door distributions in Zambia, while achieving significant time and cost savings compared with a door-to-door distribution. Contexts in which community fixed-point distribution might be an attractive option to door-to-door distribution include: areas far away from ITN storage facilities, sparsely populated areas, areas in which inhabitants are likely to be away from home when visited by CHW, areas without established CHWs or NHCs who can deliver ITNs door-to-door, and contexts with strong community ties to ensure a well-monitored fixed-point distribution and effectively community sensitize to ensure high attendance.

Based on findings of the evaluation, the community fixed point ITN distribution strategy was adopted by the MOH for use in the 2014 mass ITN distribution campaign alongside door-to-door distribution. Under the guidance of the NMCP, provinces and districts were given the option to assess their geographical setting and utilize the most suitable ITN distribution strategy. This will ensure a more efficient and cost effective 2014 ITN mass distribution campaign.

FIGURE 1. PERCENTAGE OF ITNS THAT WERE SELF-INSTALLED AT THE TIME OF HOUSEHOLD VISITS



FOR FURTHER INFORMATION:

Wang P, Connor AL, et al. Community point distribution of insecticide-treated bed nets and community health worker hang-up visits in rural Zambia: a decision-focused evaluation. *Malar J.* 2016 Mar 3;15(1):140. doi: 10.1186/s12936-016-1165-1.

<https://malariajournal.biomedcentral.com/articles/10.1186/s12936-016-1165-1>

ABOUT THE 3DE PROGRAM

The Demand-Driven Evaluations for Decisions (3DE) program is a pioneering approach to support ministries active in the health sector with evidence-based decision-making by using rigorous impact evaluations in a demand-driven, rapid and efficient way. It seeks to generate reliable impact evidence that meets the ministries' needs and is used to catalyze implementation of cost effective action.