Assessment of the impact of COVID-19 mitigation strategies on the costs of distributing insecticide treated nets in Uganda: A budget impact analysis

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Acronyms

AFM	Against Malaria Foundation
AMP	Alliance for Malaria Prevention
FAA	Fiduciary Assurance Agent
GFATM	Global Fund to Fight Aids, Tuberculosis and Malaria
IFRC	International Federation of Red Cross and Red Crescent Societies
IG2	Interceptor G2
IRS	Indoor residual spraying
ITN	Insecticide-treated bed net
LLIN	Long lasting insecticidal net
NCC	National Coordinating Committee
NMS	National Medical Stores
PBO	Piperonyl Butoxide
PFMA	Procurement and Financial Management Agency
PMI	President's Malaria Initiative
PSM	Procurement and Supply Management
RBM	RBM Partnership to End Malaria
SBCC	Social and Behavior Change Communication
SOP	Standard Operating Procedure
UGX	Ugandan shilling
VHT	Village Health Team
WHO	World Health Organization

Background and purpose

Vector control has contributed substantially to the global reduction in malaria burden that has been observed since 2000, primarily through regular mass distribution and increased use of insecticide-treated bed nets (ITNs) and the indoor residual spraying (IRS) of insecticides. The ITN is a core tool for

malaria prevention and, as such, there has been a massive increase in mobilized funds and resources towards the procurement of ITNs to prevent the disease since 2000, resulting in unprecedented levels of vector control coverage across sub-Saharan Africa.[1] Between 2000 and 2020, global malaria incidence rates fell by 27 percent and mortality rates by 39 percent. Over 10 million deaths were averted, primarily among children under five years of age.[2]

The Alliance for Malaria Prevention (AMP) is a workstream within the RBM Partnership to End Malaria (RBM). AMP is a partnership of more than 40 organizations, including government, private sector, faith-based and humanitarian organizations. AMP is housed and chaired by the International Federation of Red Cross and Red Crescent Societies (IFRC). AMP provides distance and in-country support to national malaria programmes and partners for mass ITN distribution campaigns as well as operational guidance on all aspects of ITN distribution.

With the WHO declaration of the COVID-19 pandemic, AMP focused on the development and dissemination of technical guidance for the conduct of ITN distribution campaigns during the COVID-19 pandemic and the provision of distance support for ITN mass campaigns. Over 25 countries accessed operational guidance and distance technical support from AMP to adapt ITN distribution strategies in 2020 in order to sustain gains achieved in the fight against malaria in the context of the COVID-19 pandemic. The cost implications of the adapted strategies across different country contexts are not well understood but are important to assess for planning and implementation of future campaign distributions in the context of COVID-19 or other epidemic or complex settings.

The main goal of this work is to assess the cost implications for COVID-19 adapted campaigns implemented in Uganda in 2020 to facilitate planning and budgeting for campaigns in 2022 and 2023, which will likely still require adaptations based on the current timelines for vaccine roll out in most malaria-endemic countries. By evaluating campaigns implemented in 2020 with different COVID-19 adaptations, this work will be able to accurately identify the key cost drivers and provide a robust sensitivity analysis for the components driving costing changes in the campaign.

Methods

Intervention description development

A description of the intervention was developed based on document reviews and key informant interviews with campaign stakeholders.

Timeframe and perspective

The study analyzed cost data from the provider perspective and used a one-year time frame to reflect the duration of the ITN distribution campaign. These analyses follow a budget analysis approach. The

[1] Bhatt S, Weiss DJ, Mappin B, Dalrymple U, Cameron E. Coverage and system efficiencies of insecticide-treated nets in Africa from 2000 to 2017. Elife. 2015;4:e09672.
[2] WHO. World Malaria Report 2021.. https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2021

major activities involved in producing cost estimates of ITN programmes are information gathering, program description, data collation and cleaning, and analysis and reporting.

Types of costs included

We attempted to include all financial costs associated with the distribution of nets in the 2020 Uganda ITN campaigns from the perspective of the providers of the intervention, including the National Malaria Control Division of the Ministry of Health, international donors, non-governmental organizations, and health care workers, but not household-level costs. No indirect costs, such as lost productivity or treatment seeking costs were included, nor were any purely economic/opportunity costs such as volunteer time or donated space or equipment. The primary approach (using budgeted costs) however, means that financial costs which were not included in the budgets that we were able to access may be missed.

Data collection

Cost data were collected retrospectively mainly from budgets, but additional sources include operational records, after-campaign reports, and interviews with stakeholders involved in the campaign implementation. Costing data included a budget drafted for the 2020 campaign before the COVID-19 pandemic (pre-COVID-19) and a budget for the 2020 campaign adapted for COVID-19 mitigation (post-COVID-19).

The target areas for this analysis included all Ugandan districts that participated in the mass distribution campaign during the COVID-19 pandemic in 2020.

Cost classification and adjustments

Costs were collected in Ugandan shillings. Costs collected in shillings were converted to USD at a rate of 1 USD to 3689.8 UGX[3].

Assessment of the impact of COVID-19 mitigations on budgets

Specific COVID-19 mitigations were identified through key informant interviews and document reviews. Budget line-items potentially affected by COVID-19 adaptations were identified using information from post-campaign reports on COVID-19 mitigations. Estimation of the impact of COVID-19 adaptation was conducted through direct line-item by line-item comparison to a pre-COVID-19 campaign budget. Changes in line-item quantities, costs, and totals were compared to qualitative data on applied COVID-19 mitigations collected from post-campaign reports and analyzed.

Outputs and sensitivity analysis

Costs are reported in three general ways: total financial cost of the program, total cost by activity and line-item group, and cost per net distributed (also by activity group, line-item group, and line-item). Percent change in total budget and change in cost per net distributed will be presented to assess any impact of COVID-19 mitigation on the cost of ITN distribution. Changes are also presented by activity

[3] Exchange rate based on Google Finance data, queried year 2020

code, line-item group, and specific line-items, where appropriate. A one-way sensitivity analysis was conducted around exchange rates and numbers of nets distributed.

Base case scenario

In this analysis, the base case scenario uses the two budgets as presented. The validity of the base analysis then implies that both the pre-COVID-19 campaign and the COVID-19 mitigated campaign budgets are accurate, complete and reflect reasonably well the actual expenditure and resource use that was involved (or would have been involved) in the delivery of the nets through the mass distribution campaign in Uganda.

Results

Data collection

Data were collected from Ugandan partners, including the Alliance for Malaria Prevention, President's Malaria Initiative (PMI), the Global Fund to Fight Aids, Tuberculosis and Malaria (GFATM), World Health Organization (WHO), Against Malaria Foundation (AMF), and the Ugandan Ministry of Health. Documents collected include an efficiency analysis, end process evaluations, campaign reports, and campaign budgets.

Intervention description

Mass ITN campaign

The mass ITN distribution campaign in Uganda in 2020 was designed to run from February to December 2020. However, in response to the COVID-19 pandemic, the Government of Uganda declared lockdown March 2020. Campaign activities resumed from June 2020 until June 2021. The campaign aimed to distribute one net to every two people and to achieve a minimum of 85% ITN coverage by distributing 28 million ITNs to all Ugandans, as well as refugees. Distribution of 28,411,160 nets was completed in 1,856 sub-counties within 136 districts.

Prior to the onset of the COVID-19 pandemic, campaigns were conducted in "two phase" systems by which households were first enumerated and assessed for eligibility to receive ITNs and given coupons (net cards) that they could later redeem for ITNs at fixed distribution points established nearby. Following the household registration, data analysis was completed and ITN needs for fixed sites identified to facilitate planning for transport of sufficient ITNs to fixed distribution points. Due to the desire to reduce crowding at distribution points with the onset of the COVID-19 pandemic, the distribution strategy shifted to a single-phase door-to-door approach in which simultaneous registration and distribution took place. Other major changes relative to previous campaigns included conducting meetings and trainings virtually, transitioning to a "paperless" campaign, and increasing social media communications, many of which were made in response to the COVID-19 pandemic.

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The national campaign was a multi-product campaign with PBO-ITNs and Royal Guard ITNs distributed in some areas of the country in addition to standard long-lasting insecticidal nets (LLINs). The average freight on board (FOB) cost per standard LLIN was 2.30 USD with an additional cost of 1.63 USD per net for delivery to sub-country stores within Uganda. The average FOB cost per other ITN type was 2.70 USD with an additional cost of 1.91 USD per net for delivery to sub-county stores within Uganda. Thus the

average cost was 4.23 USD delivered at the sub-county store level in Uganda. These costs are not included in the distribution cost estimates presented here.

Table 1. Uganda 2020 net procurement details

Net type	Total nets (GF + AMF)	Total nets received at National Medical Stores
PermaNet 2.0	10,604,120	10,602,800
Interceptor	1,297,680	1,297,680
SafeNet	6,121,400	6,118,800
PermaNet 3.0	6,225,400	6,222,480
Royal Guard	685,120	685,040
Yorkool	3,879,000	3,879,000
Total (net pieces)	28,812,694	28,805,800

Planning

Due to COVID-19, some standard campaign activities were altered or removed. Many strategic planning meetings, microplanning meetings, and training activities were shifted to virtual or hybrid formats. COVID-19 mitigation protocols limited the number of participants in hybrid trainings, ensured halls large enough for adequate physical distancing, and required the use of hand sanitizer and masks.

Coordination structures

Task forces were established at the district and sub-county levels in order to streamline local-level campaign implementation with the support of the National Coordinating Committee (NCC). The task forces were responsible for supporting the decentralization of implementation efforts, with the aim of promoting ownership and sustainability. These coordination efforts leveraged the COVID-19 Pandemic Task Forces previously established at the district-level. Additionally, pandemic-related complications resulted in delayed on-boarding of stakeholders, namely the National Medical Stores (NMS), the Procurement and Financial Management Agency (PFMA), and the Fiduciary Assurance Agent (FAA).

Waste management

Standard operating procedure (SOP) for medical waste, including ITN campaign waste and personal protective equipment (PPE), is to incinerate it in a nearby health facility. The distribution team was responsible for collecting waste, including PPE, at the end of every day. PPE waste was bundled into bale wrappings and transported to the sub-county stores for proper disposal. The sub-county team facilitated waste transportation to the nearest health facility where it was documented and incinerated. Costs for collection and transportation of the waste including PPE are included in the budgets analyzed in this

report, but the costs of incineration and disposal at local facilities are excluded because they were not captured in the campaign budgets.

Operations & microplanning

The 2020 campaign deployed data collection and analysis at the sub-county and village levels. Needs for PPE and other COVID-19 mitigation materials were identified and quantified at the microplanning stage.

Implementation of the campaign was Government-led through the combination of district, local government structures and national agencies. An average of 20 districts were clustered together to form a distribution wave with six waves rolled out sequentially.

Personnel

Personnel recruitment and hiring relied heavily on online recruitment and took place in March 2020. The hiring process included online questionnaires and culminated in interviews held virtually. Campaign personnel were recruited for both national and district levels. At the national level data supervisors, temporary engagement personnel, and secretariat staff were recruited. The duration of the secretariat staff was planned for 18 months; however, an additional eight months were accrued due to the pandemic.

Training

Cascade training was used with a hybrid approach of Zoom-online and face to face training in small groups. Using the Zoom platform for online training was an innovation due to the COVID-19 pandemic; however, training was disrupted by many challenges including facilitation challenges for large groups, network connectivity issues, and adapting training modules to the Zoom platform. Online training limited traditional training options like role plays and other demonstrations for practical sessions.

At the sub-county level, the training of trainers included four people from each sub-county, trained in small groups in a physically distanced manner to observe COVID-19 SOPs. These trained teams were then responsible for cascading the training to the district level where they conducted trainings and orientations for store managers, Parish chiefs, Data Entry Clerks (DECs), local guards, Village Health Teams (VHTs) and Local Council (LC) 1 Officials

Logistics

Microplanning workshop participants identified storage at the sub-county level and contacts of key personnel for net movement. Most of the stores were government-run or public facilities, but stores were mainly private in urban areas and new sub-counties. Government and public store costs above the sub-county level were not included in the analysis, but sub-county stores and their associated management and security costs were. All stores were regularly disinfected and handwashing points with soap and water were provided.

Distribution

In response to the COVID-19 pandemic, household registration and ITN distribution were combined into a single-phase distribution mechanism. An average sub-county had 140 teams to register and distribute ITNs to 14,000 households. On average, teams were expected to reach 20 households per day over five days. The campaign reached 11,305,224 households, delivered 28,411,160 nets, and over 42 million persons were estimated to be protected by having access to an ITN in their household.

In some locations house-to-house distribution was not possible and the traditional mechanism of fixed distribution points were used instead. Distribution points identified during microplanning were in line with national COVID-19 SOPs and crowd controllers and extra security personnel were hired. There were some challenges controlling crowds at distribution points in urban areas and adhering to SOPs of physical distancing.

Distribution teams were provided with masks, gloves, and sanitizers. Reusable cloth masks were procured from local manufacturers in response to global PPE shortages.

Social and behaviour change communication

In line with the COVID-19 Risk Communication Response Plan, the social and behaviour change communication (SBCC) campaign relied heavily on digital media. Previously, interpersonal communication was a key component of the SBCC strategy but in response to pandemic-related limitations on interpersonal communication, the use of social media outlets increased. SBC consisted of radio and television spots, posters, fact sheets, and advertising materials to reinforce concepts of net use, care, repair, and repurposing in addition to other malaria preventive messages. Social mobilization avenues were considered but ultimately reduced to the use of mobile vans to mobilize the communities due to COVID-19. Information about COVID-19 was disseminated simultaneously with malaria messaging. Advocacy meetings were held virtually except in specific cases where poor network connectivity required in-person meetings.

Supervision and monitoring

No notable changes were made to monitoring, evaluation, and quality assurance in response to the COVID-19 pandemic.

Adaptations implemented after the onset of COVID-19 pandemic

Key adaptations for the 2020 ITN campaign are summarized in Table 2.

Table 2. Key campaign adaptations for the COVID-19 context

Campaign elements	COVID-19 adaptation/mitigation
Priority prevention measures at the community level	• Cleaning hands with an alcohol-based sanitizer or soap and water • COVID-19 screening for district staff before and after activities • Motor vehicle transport aided through the issuing of special stickers authorizing their movements
Risk mitigation strategies	• For COVID-19 lockdowns limiting SBC and advocacy: conduct limited mobilization and advocacy visits while adhering to WHO guidelines on COVID-19 prevention

	• Limit interpersonal communication and adapt recruitment, demand creation, and rumor management to utilize mass media and social media platforms
Microplanning	● Zoom training for all national and regional level meetings ● Implement physical distancing for any in-person meetings ● Secure funding for personal protective equipment (sanitizer, face mask, gloves, soap, disinfectant, materials for handwashing stations and maintaining the water supply and cleanliness of the training rooms and warehouses/storage locations) ● Reusable, locally sourced cloth masks were used in response to global PPE shortages
Capacity building (training)	● Recruitment and personnel interviews done virtually ● Hybrid meetings (integration of Zoom and face to face) briefing of supervisors to share key take-home training messages ● Disinfect training centers
Social and behaviour change	● Ban of gatherings for social mobilization with limited interpersonal communication ● Conduct advocacy and meetings virtually or in-person with physical distancing precautions ● Procure PPE for SBC campaign personnel ● Promote use of face masks, hand sanitizers and physical distancing ● Include messaging through multiple channels including social media management ● Scale-up of radios, TV and print media instead of interpersonal communication ● Implementation of the slogan “Why survive COVID 19 and die of malaria? Mosquitoes are never in the lockdown”.
E-data management system	● Run a paperless campaign ● Transfer to using phones instead of hard copy forms ● E-payment mechanism ● E-recruitment
Procurement/ logistics	● Simultaneous registration and distribution exercise ● Regularly disinfect stores ● Collect and dispose of PPE waste into empty bales daily. Transported to sub county stores and then to nearest health facility for incineration

Implementation (registration and distribution)	● Maintain physical distancing during distribution of at least one meter ● Use of face masks for the distribution teams ● Mini distribution points ● Security personnel to accompany campaign personnel to help assure adherence to pandemic SOPs

The adoption of an e-data management system was planned for the 2020 campaign prior to the onset of COVID-19. This makes it a timely mitigation strategy to reduce disease transmission but may not have been directly in response to the COVID-19 pandemic.

Costs

The total number of nets planned for distribution in Uganda is shown in Table 3, as well as the number of sub-county pre-positioning sites and the number of households predicted for coverage.

Table 3: Administrative demographic data for the 2020 Uganda mass campaign, disaggregated by campaign wave derived from microplans

Wave	Population	No. of Households	No. of Sub-Counties	No. of ITNs required
Wave 1	7,484,520	1,570,733	398	4,379,320
Wave 2	8,627,639	1,770,367	440	5,021,040
Wave 3	13,981,981	2,974,710	470	6,406,480
Wave 4	12,470,114	2,385,507	374	5,724,000
Wave 5A	5,718,656	1,527,210	220	2,752,520
Wave 5B	9,072,106	1,766,080	149	4,127,000
Total	57,355,016	11,994,607	2,051	28,410,360

In most districts, the population estimate from the microplans was a close estimate of the population eventually served by the campaign. The largest distribution waves were earlier with the final waves 5A and 5B being the two smallest waves. In total around 28 million nets were planned for distribution to a population of approximately 57 million people.

Cost breakdown

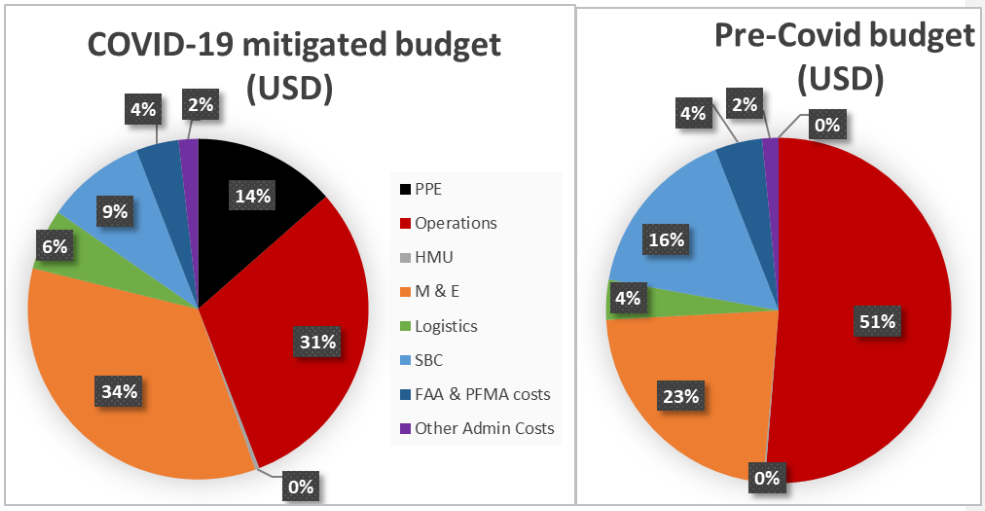
Costs are presented by activity codes utilized by the campaign budget, and by a line-item group coding system where relevant cost-drivers were identified.

Table 4 and Figure 1 show the financial cost per net distributed (not including the cost of nets) and the contribution of these costs to the total cost. Costs are presented in Table 4 including estimates from real COVID-19 adapted/mitigated budgets as well as the pre-COVID-19 budget.

Table 4: Financial costs per net distributed, by campaign step

Campaign step	COVID-19 mitigated budget (UGX)		Pre-COVID budget (UGX)		COVID-19 mitigated budget (USD)	Pre-COVID budget (USD)	Percent change from pre-COVID budget (Post – Pre)/Pre
PPE	UGX	542	UGX	-	$0.15	$0.00	Undefined
Operations	UGX	1,228	UGX	1,833	$0.33	$0.50	-34%
HMU	UGX	15	UGX	6	$0.00	$0.00	0%
M & E	UGX	1,376	UGX	811	$0.37	$0.22	+68%
Logistics	UGX	232	UGX	133	$0.06	$0.04	+50%
SBC	UGX	379	UGX	578	$0.10	$0.16	-38%
FAA & PFMA costs	UGX	162	UGX	158	$0.04	$0.04	0%
Other admin costs	UGX	74	UGX	55	$0.02	$0.01	+50%
Total	UGX	4,008	UGX	3,575	$1.09	$0.97	+12%

Figure 1: Contributions by activity codes to overall budget in post COVID-19 and pre COVID-19 campaigns



The total budgeted cost of distribution was 0.97 USD per net in the pre-COVID-19 budget, and this increased to 1.09 USD in the post-COVID-19 budget (12% increase). In terms of campaign steps and line items, the changes were mainly driven by PPE costs, and a decrease in operational costs likely due to the shift to single phase campaign for most of the distribution. This was partially offset by an increase in M & E costs in the pandemic-adapted campaign. The largest cost driver prior to the pandemic was operations, but in the pandemic adapted budget M & E became the largest cost driver, comparable to total operational costs. The M & E costs increased by nearly 70% between the pre-COVID-19 budget and

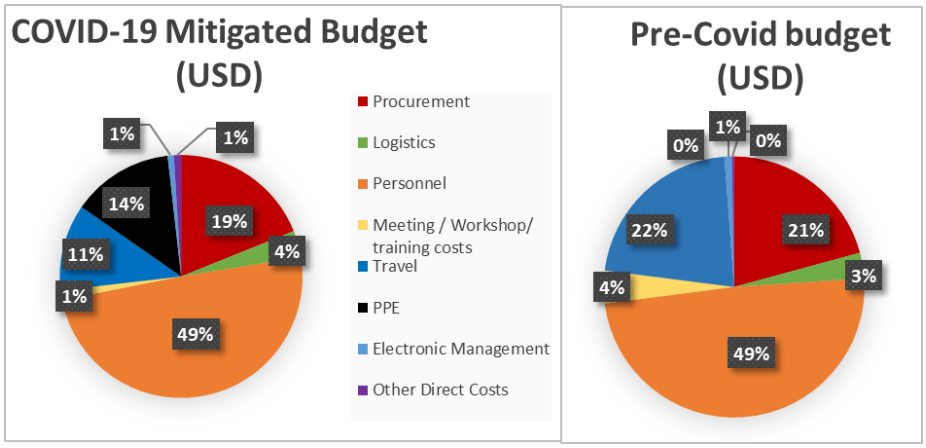
the COVID-19 mitigated budget, largely due to significant increases in personnel costs for data entry and management during the household registration process. Some of this may reflect a move of personnel costs between categories for example from operations and into M & E related to the shift to a single-phase campaign. Alternatively, this shift may be explained by the transition to the e-data system and how personnel costs were allocated within the overall budget.

Table 5 and Figure 2 show the financial costs per net distributed categorized by line-item group not including net costs.

Table 5: Financial costs per net distributed, by line-item group

Line item group	COVID-19 mitigated budget (UGX)	Pre-COVID budget (UGX)	COVID-19 mitigated budget (USD)	Pre-COVID budget (USD)	Percent change from pre-COVID budget (Post – Pre)/Pre
Procurement	UGX 758	UGX 743	$0.21	$0.20	+5%
Logistics	UGX 142	UGX 113	$0.04	$0.03	+33%
Personnel	UGX 1,982	UGX 1,752	$0.54	$0.47	+15%
Meeting / workshop/ training costs	UGX 51	UGX 145	$0.01	$0.04	-75%
Travel	UGX 462	UGX 779	$0.13	$0.21	-31%
PPE	UGX 542	UGX -	$0.15	$0.00	Undefined
Electronic management	UGX 33	UGX 32	$0.01	$0.01	0%
Other direct costs	UGX 39	UGX 10	$0.01	$0.00	Undefined
Total	UGX 4,008	UGX 3,575	$1.09	$0.97	+12%

Figure 2: Contributions of line-item groups to overall budget in post-COVID-19 and pre-COVID-19 campaigns



The single largest cost driver in both pre and post pandemic budgets is personnel, with procurement and then travel important secondary components. Major changes occurred with reductions in personnel cost and increases in PPE costs post-pandemic onset. Travel costs also fell substantially in the COVID-19 mitigated campaign, likely reflecting the increased use of virtual training. Meeting and workshop costs declined by approximately 75% in the pandemic-adapted budget. However, these costs represented a small proportion of the total distribution costs limiting the impact of cost savings in this area on the overall budgeted cost. Overall personnel costs increased by 15% in the COVID-19 mitigated budget, accounting for a large proportion of the 12% overall increase.

One-way sensitivity analysis

Table 6 shows the results of one-way sensitivity analysis. Resilience towards assumptions was tested.

Table 6: Sensitivity analysis of selected parameters, per net distributed (USD)

Sensitivity analysis parameter adopted value	Pandemic-adapted costs (USD)	Counterfactual costs (USD)	Resulting change in incremental cost (%)	Rationale
Base Case Scenario	**$1.09**	**$0.97**	-	-
Exchange rate raised to 3700 UGX per USD from 3689.8 UGX	$1.08	$0.97	-1.1%	Exchange rate of 3700 was used in the 2020 Ugandan budgeting
Total number of nets distributed decreased to 27,797,188 from 28,411,160	$1.11	$0.99	0%	Lowest reported number of

				nets distributed

These results indicate that neither the exchange rate chosen, nor the total numbers of nets assumed in the study have a major impact on the magnitude of the increase in costs due to COVID-19. Since both assumptions are applied across the pre and post COVID-19 budgets this is not a surprise. The differences in the numbers of nets assumed to be distributed by the campaign also makes a very minor impact on the unit cost of distribution estimate. This is largely due to the small variation in net numbers reported as distributed.

Discussion

COVID-19 mitigation appears to have increased the costs of ITN distribution in Uganda by approximately 12%. This increase however is much smaller when the costs of nets are considered, since the nets contribute (assuming a 2.48 USD average price for nets and 71% procurement and supply management) nearly three quarters of the total cost of the ITN distribution. This increase would constitute a less than 5% increase in the total costs of the campaign.

The majority of the increase in cost resulted from the procurement of PPE and increased M & E costs. Some pandemic adaptations (including the shift from two phase to single phase campaigns or the use of some virtual and hybrid trainings/meetings) might in some cases be cost saving. It appears that in the case of the Uganda budget that the shift to a single-phase modality for the majority of the campaign was indeed cost saving, and more than offset the total cost of PPE. However, some of this apparent cost-saving may have resulted from shifting of costs from operations to M & E budget lines.

This work has substantial limitations. Costs were estimated mainly from budget documents and may therefore not accurately reflect true financial expenditure and/or resource use. While mass ITN campaigns tend to rely less on donated resources or local uncompensated use of facilities and personnel compared to continuous distribution strategies, they may still rely on local resources which are unbudgeted or financially recorded (such as warehousing when using national resources or incineration facilities). These costs are not included in this analysis and therefore it likely underestimates the true economic cost of distribution. Additionally, it is not known if the quality of this campaign was enhanced or reduced due to COVID-19 mitigations including the shift to a single-phase strategy. Research to determine if single-phase campaigns achieve similar or improved coverage to two-phase campaigns may be required to ensure that these shifts which may increase efficiency of campaigns do not do so at the expense of effective coverage.

Conclusion

COVID-19 mitigation increased the costs of ITN distribution in Uganda by approximately 12%. This increase in the total cost of the campaign including nets was much smaller (<5%). The cost of some mitigation strategies alone (such as a shift to a single-phase campaign compared to a two-phase campaign) may in and of themselves be cost saving, though they are not likely to result in large changes to the overall campaign cost. More research is needed to determine if these mitigation strategies result in changes in effective coverage.

After campaign report references:

Uganda Ministry of Health, National Malaria Control Division. June 2020-April 2021. **Third National Mass Campaign for Universal Access to Long-lasting Insecticide-treated Mosquito Nets (LLins) for Malaria Prevention in Uganda**.

Uganda Ministry of Health, Department of Health Promotion, Education and Strategic Communication. July 2020. **COVID-19 Uganda Response: Public health risk communication strategy**.

Ministry of Health Uganda. June 2020. **Mass Distribution of Long-Lasting Insecticide Treated Nets to Achieve Universal Coverage in Uganda: Campaign plan of action/implementation guidelines for universal coverage campaign 2020**. (Annex I: Modification of implementation of the campaign due to COVID-19)