EDUCATION COST-EFFECTIVENESS BRIEF - Phone-based Reach Up & Learn

Jordan| 2021

Executive Summary

In 2021, the International Rescue Committee (IRC) delivered a 6-month audio-only early childhood development (ECD) intervention for Syrian and Jordanian caregivers as part of the Ahlan Simsim initiative with Sesame Workshop. Ahlan Simsim's Phone-based Reach Up and Learn (RUL) program was adapted from an in-person home-visiting program for remote implementation due to the COVID-19 pandemic. Over the course of 6 months, community health volunteers (CHVs) provided an average of 11 calls to 1,157 households on ECD and health and nutrition content. An impact evaluation of remote Reach Up & Learn was led by Global TIES for Children at New York University, in collaboration with the IRC and Sesame Workshop research teams. The evaluation included a cost effectiveness study, conducted by the Center for Benefit-Cost Studies of Education at University of Pennsylvania and IRC's Best Use of Resources team. The IRC-led analysis of the cost to the implementing partner is the focus of this brief. Costs to caregivers is also described.

Phone-based RUL costs $110 per household. The largest cost to implement phone-based RUL is CHV time, amounting to 26% of total costs. As a result of the program being remote-delivered, the program had a light management structure and no material resources compared to in-person education programs.

The impact evaluation of the program found that phone-based RUL had no detectable impacts on its primary outcome of interest, caregiving practices, or on child development, but did produce a slight reduction in caregivers' depressive symptoms. Phone-based RUL cannot be considered cost-effective as a result of no impacts on the primary outcomes for the program – caregiving behavior.

Project Description

Ahlan Simsim is a ground-breaking initiative from the International Rescue Committee (IRC) and Sesame Workshop (SW), that delivers critical early learning and nurturing care to children and caregivers affected by conflict and displacement across the Middle East. The initiative works by combining a localized version of S*esame Street* and direct service support to families in Jordan, Lebanon, Iraq, and Syria, and has been made possible through generous funding from the John D. and Catherine T. MacArthur Foundation and the LEGO Foundation.

Reach Up and Learn (RUL) is an early childhood program that first started in Jamaica and aims to provide adaptable programming in low-resource settings for children up to 3 years of age.[1] Evaluations of in-person RUL have shown positive impacts on child development and caregiving practices in a variety of contexts globally. Children who received the program have been shown to have higher IQs and fewer behavioral problems, translating into higher earnings and fewer behavior problems as adults.[2] Since then, RUL has been adapted, and implemented at scale, in many low-and-middle income country contexts.

Since 2016, the IRC has delivered RUL to Syrian refugee families in Jordan, Lebanon, and Syria, first as part of existing child protection programming and later as part of the Ahlan Simsim initiative. The program began as weekly, or twice-monthly, in-person visits to caregivers of children aged 6-42 months. In-person RUL was implemented over a 3-month, 6-month, or 1-year period, depending on the

Activities

For both the health and nutrition and RUL programs, CHVs received the following:

- CHVs were provided tablets and SIM cards for calls. There were no additional supplies needed for the health and nutrition program.
- CHVs conducted up to 18 audio-only phone calls (up to 3 calls per month over 6 months) with individual caregivers.

Health and Nutrition Program

- CHVs were trained on health and nutrition messages. The 5-day training was remote.
- CHVs talked to caregivers during calls about health and nutrition topics tailored to ages and health needs of household members.
- Calls were 18-23 minutes (3-minute greeting / check-in; 10-15 minutes on health topics; 5 minutes to summarize call content and address questions).

Reach Up & Learn Program

- CHVs were trained both in supporting caregivers through RUL and in health and nutrition. The training was remote with 5 days for health/nutrition and 5 days for RUL.
- CHVs were provided tablets and SIM cards to conduct their calls. There were no additional supplies needed for the remote RUL program. Caregivers were instructed to repurpose common household items as needed for RUL activities to support child development.
- CHVs talked to caregivers during calls about parenting, ECD, and developmentally supportive activities to do at home with children, tailored to child age, as well as about health and nutrition topics tailored to household members' needs.
- Calls were 25-30 minutes (3-minute greeting / check-in; 10-15 minutes on health and nutrition topics; 7-10 minutes on RUL; 5 minutes to summarize call content and address questions).

[1] https://reachupandlearn.com/about/jamaica-home-visit-programme/

[2] "Encouraging Early Childhood Stimulation from Parents and Caregivers to Improve Child Development." The Abdul Latif Jameel Poverty Action Lab (J-PAL), Apr. 2020, www.povertyactionlab.org/policy-insight/encouraging-early-childhood-stimulation-parents-and-caregivers-improve-child.

country and whether it was implemented as a standalone program or integrated with other content, such as health.[3]

As a result of the COVID-19 pandemic, the IRC adapted RUL to be delivered via phone, through audio-only phone calls instead of in-person visits. In addition to the RUL content, these calls included well-being checks and coaching to help parents implement early childhood development (ECD) activities for their children. This was delivered along with health and nutrition content that was independent of RUL, using IRC Jordan's community health program materials. The intended implementation of phone-based RUL was three calls per household per month over six months, for a total of 18 calls per household. The intended call length can be seen in Figure 1. The goal of the phone-adapted RUL program was to strengthen responsive caregiving practices to support early childhood development to help children achieve cognitive and socioemotional learning for future academic success and well-being.

Figure 1. Intended treatment contrast between treatment and control groups.

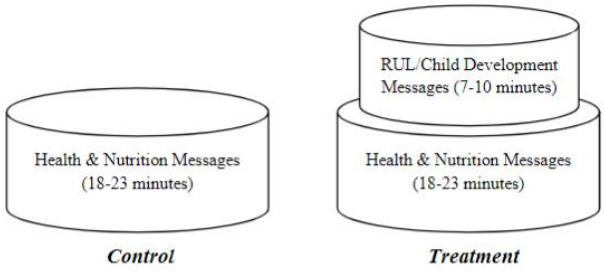


Figure Source: UPenn Center for Benefit-Cost Studies of Education

This study, led by the Global TIES for Children Research Center at New York University, was conducted to understand the effectiveness and cost-effectiveness of phone-based RUL.[4] It followed a cluster-randomized controlled trial approach and collected both quantitative and costing data. A group of 99 Community Health Volunteers (CHVs) were randomly assigned to either the control group, providing health and nutrition content only, or were assigned to the treatment group, provided psychosocial and RUL in addition to health and nutritional content. CHVs for each treatment group were to call caregivers of children in the targeted age group three times a month, for six months, to deliver the selected content and to check in on caregivers' well-being. Each of the 99 CHVs worked with an average of 31 families.

All caregivers were randomly assigned to either the control or treatment group: 1,139 caregivers were in the control group, and 1,157 caregivers were in the treatment group. A total of 13,185 calls were made

[3] Vachon A, Wilton K, Murphy K, Al Aqra A, Prieto Bayona M, Sloane P, Kane E, Yoshikawa H, Wuermli A, Magan I, Ramachandran A, Schwartz K. Reach Up and Learn in the Syria Response. International Rescue Committee, 2020. https://www.rescue.org/sites/default/files/document/4803/irc-rul-reportapril27-2020.pdf; Wilton KS, Murphy KM, Mahmud A, Azam S, Habib A, Ibrahim I, Della Neve E, Pena G, Mehrin SF, Shiraji S, Hamadani JD. Adapting Reach Up and Learn in Crisis and Conflict Settings: An Exploratory Multiple Case Study. Pediatrics. 2023 May 1;151(Suppl 2):e2023060221K. https://pubmed.ncbi.nlm.nih.gov/37125885/.

[4] Rafla J, Schwartz K, Yoshikawa H, Hilgendorf D, Ramachandran A, Khanji M, Abu Seriah R, Alaabed M, Fityan R. Sloane P, Al Aqra' A, Sharawi T, Molano A, Foulds K, Bowden AB, Lee S, Hoyer K, Behrman J, Wuermli A. Randomized controlled trial of a phone-based caregiver support and parenting program for Syrian and Jordanian families with young children. (Under review)

to the treatment group, for an average of 11 calls per treatment group household that received phone-based Reach Up and Learn. While 18 calls per household was intended, the average of 11 calls per household was likely a result of caregivers not being able to be reached due to phone line disconnections and missed calls due to scheduling challenges.

Structured coding of 65 randomly selected treatment calls found that an average of 8.5 minutes of phone call time was spent instructing caregivers on activities to do with their children (RUL). The calls were an average of 20.6 minutes for the control group and 26 minutes for the treatment group.

Project Costs

This brief examines the costs associated with the implementation of phone-based Reach Up and Learn. Both IRC costs to implement and caregiver opportunity costs to participate are included in the cost analysis to provide a full social cost estimate. IRC's Best Use of Resources (BUR) team calculated the cost to the implementing organization through financial data and time and effort allocations, and the University of Pennsylvania's Center for Benefit Cost Studies of Education (CBCSE) calculated the cost to the caregiver by collecting data through caregiver surveys. Using comparable methodologies, BUR and CBCSE were able to pair their results together for a social cost analysis.

CBCSE deployed caregiver surveys to understand caregiver participation time in the CHV calls and the opportunity cost calculated based on legal status. 55% of the caregivers were Syrian refugees and 45% were Jordanian citizens. While employment opportunities for Syrian refugees in Jordan are extremely limited and restricted, some are able to obtain work permits. The evaluation assumes that the rate for Syrian caregivers who have obtained work permits is 230 Jordanian Dinars (324 USD 2020) per month, which is the minimum wage for foreign workers in Jordan. The reported monthly wage rate for Jordanians of 260 Dinars (367 USD 2020) was applied to Jordanian caregivers who received phone-based RUL. A sensitivity analysis was also performed using the higher rate paid to CHVs as the minimum wage rates may not capture the value that caregivers might place on their time used for RUL, especially as CHVs were drawn from similar communities as the caregivers.

IRC Cost to Implement

RUL costs $110 per household, for 11 content delivery calls (Table 1). The cost of the phone-based RUL program was $126,110 for March to September 2021. The implementation of phone-based RUL leveraged the existing health team, so additional recruitment was not needed for CHVs and health programming.

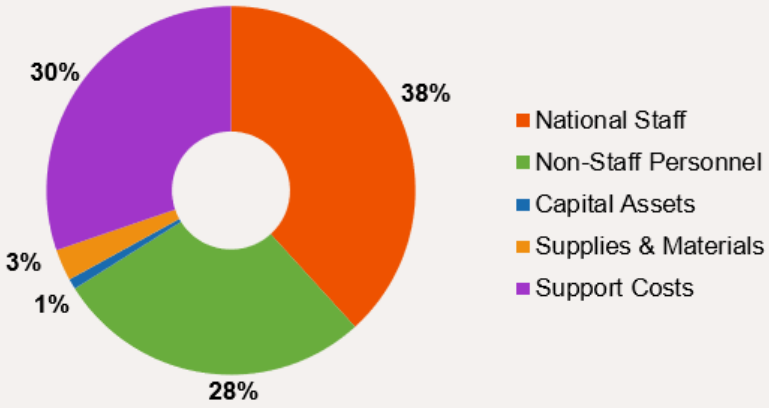
Table 1. Phone-Based Reach Up & Learn Cost Results		
Number of CHVs	55	
Households	1,157	
Months of Calls	6	
Total Household Calls on ECD	13,185	
Average Call per Household	11	
Avg. Calls per Household per Month	2	
	Total Cost	Program Cost
Cost per Household	$110	$80
Cost per Call	$10	$10

The largest single expense to implement remote RUL is the cost of CHV time, accounting for 28% of total IRC costs (Figure 1). CHVs are non-staff personnel, or incentive workers, and are paid a daily rate for their work. If RUL were to be implemented by full-time staff, we would expect the cost of the program to increase as wages increase and benefits are added. CHV time as the single largest cost is

expected because CHVs are the primary implementers of phone-based RUL. In addition, as a result of being remote, the phone-based adaptation of RUL had no materials and a light management structure.

While CHVs are the single largest input, the largest overall cost category is National Staff. Other types of expenses, such as Supplies & Materials, Office Expenses, and Travel, together make up less than 10% of overall spending. This is to be expected for a remote-implementation program. In the in-person implementation of RUL, ECD kits are provided to caregivers to facilitate lessons. The kits were removed from phone-based implementation because CHVs were not visiting homes to distribute the kits.

Figure 1. Cost Breakdown by Category



Cost-efficiency gains could be achieved by increasing the number of calls per CHV per day. This could be done by increasing the scale of the program by adding additional households, or by increasing the frequency of the calls per household. At only 2.5 successful calls per day on average, an increase in scale or frequency is possible. As CHVs were paid per day worked, rather than per phone call, the cost of CHV time would not change as the number of calls per day increased. It is difficult to determine the reasons behind the low number of calls per day with the available data. This study only tracked the number of successful calls where program content was delivered, not the number of attempted calls. CHVs reported challenges scheduling calls with caregivers and had to call caregivers to schedule times to talk and follow up if caregivers did not pick up at originally scheduled times. CHVs also reported challenges reaching caregivers due to disconnected and changing phone numbers, as phone companies in Jordan quickly disconnect phone numbers if bills are not paid. It is also possible that the program could increase the number of calls per day through changing CHV incentives, such as by tying pay not only to days worked but also to number of successful calls.

Caregiver Costs

The cost of caregiver time to receive the phone calls, and implement the RUL activities with their children, is less than $10 over the six-month period. Only around 2 hours of incremental caregiver time was observed per household in total over six months.

The cost of caregiver time spent on the RUL intervention does not change significantly even when different estimates for the value of caregiver time are used. The sensitivity of the cost estimate to the choice of "time cost" was also assessed, by substituting the hourly pay of CHVs in place of minimum wage. This approach allowed researchers to consider how much the program would cost if CHVs performed the ECD activities with children themselves, instead of mobilizing caregivers to do these activities. In addition, the CHVs were drawn from similar communities as the caregivers and had similar

levels of skill and background experience. As such, the hourly minimum wage may underestimate the value of caregivers' time. Using the CHV hourly rate of 4.11 USD, the overall change in total cost and cost to families is small, at around 10 USD per household in additional time cost, resulting in an average cost of caregiver time to be 10 USD and an average total cost of 120 USD per household for the RUL intervention.

Results of the Impact Study

The impact of the phone-based RUL program in Jordan was measured in a randomized evaluation led by NYU Global TIES for Children in collaboration with the IRC and Sesame Workshop research teams. The following key findings were identified by the impact evaluation and grouped by outcome.

- **Phone-based RUL had no impact on its main target parenting behavior, or on the exploratory outcome of child development** – There was no statistically significant change for any of the hypothesized caregiver-child interactions and child development outcomes.
- **Phone-based RUL had a small positive impact on caregiver mental health** – phone-based RUL was able to reduce caregivers' depressive symptoms. However, there was no significant change in caregiver anxiety or other caregiver well-being outcomes.
- **Limited secondary outcome results** – the evaluation found increases in the call quality of treatment RUL+ health calls as compared to the control group health only calls that may explain the reduction of caregivers' depressive symptoms. Treatment group CHVs showed better skills in responsive listening and building non-judgmental rapport. The program also increased the probability of caregivers watching the *Ahlan Simsim* TV show with their children, likely due to enumerators mentioning *Ahlan Simsim* in the informed consent script while collecting data from treatment families.

Cost-Effectiveness

As the program produced no positive impacts on its main target outcome – parenting behavior – phone-based RUL cannot be considered cost-effective.

The impact evaluation of the phone-based RUL detected no impacts on 8 out of the 9 hypothesized outcomes, including outcomes that the RUL program has been able to successfully improve in other contexts while implemented in person. While phone-based RUL was found to produce a small reduction in caregiver depressive symptoms, it is not a cost-effective ECD intervention. This result is true regardless of the cost of the program.

The dosage of remote Reach Up and Learn is hypothesized to have been too low, resulting in a negligible impact. Future implementation of remote RUL should be higher dosage.

The current phone-delivered adaptation provided only around 7-10 minutes of RUL content per call twice a month, averaging around 84-120 minutes of the intervention across the six months. This was substantially less time than evaluated in-person versions of RUL, which assessed the impact of 3,000-

minute (1-year) and 6,000-minute (2-year) programs. These higher-dose, in-person programs demonstrated positive impacts on caregiver-child interactions and child development.

The relatively low number of calls made by CHVs also contributed to the higher-than-expected cost of the program.

As discussed earlier, CHVs placed an average of two calls per month to each caregiver rather than the initially designed three calls per month. Each CHV was paid per day of work, regardless of how many successful calls were made. IRC's cost-effectiveness analysis tracked the days worked for the 55 CHVs, as well as the total number of calls made, with each CHV completing an average of 2.5 calls per paid day. Each call lasted on average 26 minutes with 8.5 minutes of RUL content per call for the households in the research study. Cost-effectiveness gains can be achieved if calls could be compressed into fewer days of work rather than spread out over many, fully compensated working days.

RUL content is likely not appropriate for audio-only calls.

The typical RUL curriculum as evaluated in other contexts focuses on three components: demonstration, practice, and feedback for caregivers conducting developmentally supportive activities with children. Each of the three components is affected when transitioned into an audio-only format. Participants surveyed prior to the program indicated a preference for audio-only over concerns about data usage in video or images. However, while this phone-based program had minimal impacts on child outcomes, other phone-based parenting programs that have used video have demonstrated impacts on parenting and child outcomes. This suggests that modifications to either the curriculum or the delivery mechanism should be considered to increase impact and cost-effectiveness. For example, it may be better to incorporate video components to better deliver RUL content, so caregivers can see the activities demonstrated visually.

Analysis Method: Cost-Effectiveness at the IRC

The IRC is committed to maximizing the impact of each dollar spent to improve our clients' lives. Cost-effectiveness analysis compares the costs of a program to the outcomes it achieved (e.g., cost per diarrheal incident avoided, cost per reduction in intra-family violence). Conducting cost-effectiveness analysis of a program requires two types of information:

1) An impact evaluation on what a specific program achieved, in terms of outcomes.
2) Data on how much it cost to produce that outcome.

Teams across the IRC produce a wide range of outcomes, but cost-effectiveness analysis requires that we know - based on impact research - exactly which outcomes were achieved and how much they changed, for a given program. For example, an impact evaluation might show a village that received IRC latrines and hygiene promotion had a 50 percent lower incidence of diarrhea than a village next to it which did not receive the IRC intervention. If so, we know the impact of our program: 50 percent decrease in diarrhea incidence. Cost-effectiveness analysis becomes possible only when there is an impact study that quantifies the change in outcomes as a result of the IRC project.

As such, IRC gathers data on how much the evaluated program costs when implementing impact evaluations. First, IRC staff build a list of inputs that were necessary to implement the evaluated program. If one thinks of a program as a recipe, the inputs are all the 'ingredients' necessary to make that dish. Budgets contain a great deal of information about the ingredients used and in what quantities, so reviewing the program budget is the first place to start. However, many of the line items in grant budgets are shared costs, such as finance staff or office rent, which contribute to multiple programs, not just the one included in the impact evaluation. When costs are shared across multiple programs, it is necessary to further specify what proportion of the input was used for the program. Specifying such costs in detail, while time-consuming, is important because it provides lessons about the structure of a program's inputs. We can divide costs into categories and determine whether resources are being allocated to the most important functions of program management and enable us to model alternative program structures and quantify the cost implications of different decisions.

A full explanation of the IRC's cost analysis methodology can be found here: ***www.rescue.org/report/cost-analysis-methodology-irc***

More on IRC's costing work can be found at ***rescue.org/cost-analysis***

The cost to the implementing organization was led by the Best Use of Resources team at the IRC. The University of Pennsylvania team led the cost to client analysis. For questions or more information please contact us at **costanalysis@rescue.org**.

Preferred Citation
Hoyer, Kayla. 2023. "Education Cost-effectiveness Brief – Phone-based Reach Up and Learn." The International Rescue Committee.

You can find more information on this study in the full cost-effectiveness report by CBCSE, IRC, and Global TIES:

Bowden, A.B., Lee, S., Behrman, J., Yoshikawa, H., Bernard, J., Hoyer, K., & Zahra, F. *(2022). Phone-based Reach Up and Learn Cost-Effectiveness Report.* Center for Benefit-Cost Studies of Education, University of Pennsylvania.

Impact Evaluation, led by Global TIES for Children at New York University, in collaboration with the IRC and Sesame Workshop research teams: Rafla J, Schwartz K, Yoshikawa H, Hilgendorf D, Ramachandran A, Khanji M, Abu Seriah R, Alaabed M, Fityan R. Sloane P, Al Aqra' A, Sharawi T, Molano A, Foulds K, Bowden AB, Lee S, Hoyer K, Behrman J, Wuermli A. Randomized controlled trial of a phone-based caregiver support and parenting program for Syrian and Jordanian families with young children. (Under review)

GENEROUS SUPPORT FROM MacArthur Foundation The LEGO Foundation

Jordan | 2021 USD

Phone-based RUL Program Costs	IMPLEMENTATION	TOTAL
National Staff	**$ 48,236**	**$ 48,236**
ECD Coordinator	$ 4,538	**$ 4,538**
ECD Senior Operations Assistant	$ 413	**$ 413**
ECD Technical Manager	$ 4,105	**$ 4,105**
ECD Drivers	$ 3,050	**$ 3,050**
Senior RMEL Manager	$ 7,958	**$ 7,958**
Research Officer	$ 342	**$ 342**
Research Assistant	$ 286	**$ 286**
ECD Driver - Monitoring (2)	$ 672	**$ 672**
Community Health Manager	$ 2,158	**$ 2,158**
Community Health Officer	$ 6,509	**$ 6,509**
Senior Health Officer	$ 1,666	**$ 1,666**
Content Coordinator	$ 2,085	**$ 2,085**
ECD Technical Lead	$ 2,135	**$ 2,135**
National Staff Benefits 39%	$ 12,228	**$ 12,228**
Non-Staff Personnel	**$ 35,073**	**$ 35,073**
Community Health volunteers	**$ 29,666**	**$ 29,666**
Community Health volunteers (supervisors)	**$ 3,366**	**$ 3,366**
Monitoring and Research Assistant	$ 2,042	**$ 2,042**
Supplies & Materials	**$ 3,488**	**$ 3,488**
Mobile Telephone - Programs Volunteers	**$ 851**	**$ 851**
Tablets (sim cards, credit) - RUL Home Visitors	**$ 2,638**	**$ 2,638**
Capital Assets	**$ 1,159**	**$ 1,159**
Screen Monitors	$ 1,100	**$ 1,100**
Tablets	$ 59	**$ 59**
SHARED COSTS	**$ 38,148**	**$ 38,148**
TOTAL	**$ 126,105**	**$ 126,105**
Cost per RUL Household Session (n = 13,185)		**$ 10**
Cost per Household (n = 1,157)		**$ 110**