

An Evaluation of a Peer Supervision Pilot Project among Community Health Workers in Rural Uganda

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Abstract

Background

The World Health Organization recommends use of community health workers (CHWs) as a strategy to address the growing shortage of health workers. High-quality, regular supervision can help CHWs reach their full potential. Living Goods operates a community health program in 19 districts of Uganda. In the standard supervision model for the program, CHWs are supervised by a full time Community Health Supervisor (CHS) who reviews performance, coaches and mentors the CHWs. Whereas this model has proven to be effective, it is very expensive. Evidence indicates that peer supervision can be a substitute for standard supervision. In this paper, we describe our experience and program outcomes while implementing a peer supervision model among 211 CHWs in Mayuge district between January and December 2019.

Objectives

1. To describe the peer supervision model used. 2. To compare health services delivery outcomes. 3. To compare costs of delivery of the two supervision models.

Methods

Internal organization records from January to December 2019 were reviewed. Focus group discussions and in-depth interviews with 29 CHWs were also conducted. Qualitative analysis was conducted using thematic content analysis while quantitative data was summarized to generate averages, percentages and graphs.

Findings

CHWs under the peer supervision model performed better than those under the standard supervision model against all key performance indicators (KPIs). The total cost to maintain the peer supervision model for 1 year was \$176 per CHW vs \$273 among CHWs under the standard supervision model. Peer supervision thus resulted in an overall saving of 36% of direct operations costs. There was lower attrition among CHWs under peer supervision vs non-peers (10% vs 17%). Strengths of peer supervision included: improved CHW teamwork and motivation, optimization of supervisor time, as well as reduced program costs.

Conclusions

Peer supervision is a feasible and more affordable model of supervising CHWs.

Background

The World Health Organization recommends the use of community health workers as a strategy to address the growing shortage of health workers, particularly in low-income countries (World Health Organization, 2018). The umbrella term “community health worker” (CHW) embraces a variety of community health aides selected and trained to render certain basic health services to the communities they come from (Lehmann and Sanders, 2007). Extensive research has shown CHW programs to be effective in delivering a range of preventive, promotive, and curative services related to reproductive, maternal, newborn, and child health (Gilmore and McAuliffe, 2013; Glenton et al., 2011; Lewin et al., 2010; Lassi and Bhutta, 2015; Lassi et al., 2016; and Black *et al.*, 2017). Despite these benefits, many challenges including supervision, quality control and support make CHW programs difficult to maintain (Tulenko et al., 2013).

The quality of CHW supervision is often constrained due to lack of skills and tools, time for supervision, travel expense and logistics, financial obstacles as well as gender issues. This is because men are often the supervisors and women the CHWs (Hill et al., 2014, Tulenko et al., 2013; Crigler et al., 2014; Rachlis et al., 2013; Tulenko, 2019). According to Tulenko (2019), CHWs have special supervision needs because their level of education and literacy is usually much lower than other health workers and their period of formal CHW training is often only a few weeks. In addition, they usually practice alone, providing little room for reinforcement or support. In combination, these factors can result in poor quality work, burnout, absenteeism, and attrition. Therefore, investing in high-quality CHW supervision can help CHWs perform better. Evidence at the global level suggests that regular and systematic supervision, with clearly defined objectives, can improve the motivation and performance of CHWs involved in primary health care (Yeboah-Antwi et al., 2010; Mogasale et al., 2010; Djibuti et al., 2009; Mbindyo et al., 2009; Das et al., 2014; DeRenzi et al., 2012; Kaphle et al., 2016; Singh et al., 2016; Som et al., 2014; Nonaka et al., 2014; Ngugi et al., 2018; Ludwick et al., 2018). Supervision focused on supportive approaches, quality assurance and problem solving is generally considered most effective at improving CHW performance (Kok et al., 2015; Hill et al., 2014).

Living Goods operates a community health program of more than 4,200 CHWs in 19 districts of Uganda. In its standard supervision model, 30 CHWs are supervised by a CHS who is a full-time employee of the organization. The CHS reviews performance of the CHWs and carries out field visits with each of the CHWs, coaching and mentoring them to achieve their targets. Whereas this model has proven to be effective, it is very expensive to implement. The unit cost of supervising one CHW for one year under this model is \$273. Evidence indicates that peer supervision can be a substitute for standard supervision since it is more cost efficient (Hu, 2014; Hill et al., 2014; Henry et al., 2016; Ngabo et al., 2012; Chang et al., 2011), results in stronger commitment to work, and CHWs found more creative solutions to problems (Ngabo et al., 2012).

Peer supervision is defined as an approach in which selected CHWs take on supervisory roles through peer-to-peer learning, support and problem solving (Hu, 2014). In November 2018, Living Goods piloted a peer supervision model for its CHWs working within one district. In this paper, we describe our experience

implementing the model, report program outcomes from November 2018 to November 2019, and provide qualitative analysis of the successes and challenges of the program.

Case Presentation

The peer supervision model was implemented in Mayuge District, located in the Eastern region of Uganda. It is bordered by Iganga District to the north, Bugiri District to the northeast, Namayingo District to the east, the Republic of Tanzania to the south, and Jinja District to the west. A large proportion of the district surface area is open water of Lake Victoria. Another 10% of the district is protected national forest reserve. The district has many Islands which are currently occupied by permanent and migratory fishermen. The 2014 National Census estimated the population of Mayuge District to be 473,239. Living Goods started operations in Mayuge in 2009. Within the district, we have presence in 12 (86%) sub-counties, with an estimated coverage of 53% (238) of the villages. There is a total of 441 CHWs, 211 (48%) of whom were randomly selected to participate in the peer supervision pilot.

Goal of the pilot

The main objective of the pilot was to assess the feasibility and effectiveness of using the peer supervision model among CHWs. The pilot specifically sought to

- Test feasibility of implementing a new supervision model in delivering results
- Reduce program costs

Design

The model borrows best practices from other models implemented elsewhere, like the Lady Health Worker Program (Pakistan), Integrated Management of Childhood Illness (Benin), and Health Extension Workers Program (Ethiopia). CHWs in close geographic proximity grouped themselves together into 8 to 12 per group and chose a leader, called a peer supervisor (PS). A total of 20 peer supervisors were selected. Each PS led their own group. The PSs were centrally trained on mentorship, coaching, and android support at the beginning of the pilot. They attended subsequent monthly meetings to reinforce their knowledge, receive updates and also troubleshoot problems. PSs were expected to continue to conduct CHW activity at the same volume as before. Each PS received \$5.4 as weekly facilitation to cater for transport and communication costs as they supervise their peers. The groups were provided with a monthly performance-based incentive capped at \$2.7 per CHW, based on pre-set targets on key indicators. A CHS was attached to 5 to 10 groups of CHWs and was expected to visit each group weekly for 2 to 3 hours. The role of the CHS was to support the group leader and the other CHWs to deliver impact, strengthen their capacity based on needs and deliver relevant stock. The design was based on the assumption that the PS is a CHW and remains a CHW within the group he/she is supervising. The responsibilities of the CHS and the PS are highlighted in Table 1. The groups would all stay under the Living Goods CHS who supervises and over sees the activities of the team, as expressed in Fig. 1 below.

Table 1
Responsibilities of a CHS and peer supervisor during the pilot

Responsibilities of a CHS	Responsibilities breakdown under peer supervision
<ul style="list-style-type: none"> • Motivate CHWs • Implement marketing and promotional efforts to support CHWs' sales goals. • Lead monthly In-Service meeting of CHWs. • Support the management of financial operations. • Support the management and maintenance of inventory. • Support the management of relations between Living Goods and the implementing partner organizations. • Work closely with the district 	<p>For the CHS</p> <ul style="list-style-type: none"> • Coach the peer supervisors • Review performance and quality of all CHWs • Conduct group field visits/meetings • Re-stock CHWs • Conduct refresher trainings as needed <p>For the Peer supervisor</p> <ul style="list-style-type: none"> • Motivate the CHWs to achieve their targets • Review CHW performance • CHW stock check • Door to door activities/ movement with CHWS

Evaluation Methodology

A review of program records was conducted, and the findings triangulated with qualitative methods. A qualitative evaluation of the model was commissioned to specifically document peer supervisors', CHWs' and CHSs' experiences with peer supervision, establish the challenges and how they were mitigated during the pilot as well as to document lessons learnt and best practices from the pilot to inform programming.

Data Collection:

Program data from January to December 2019 were reviewed, comparing CHW participants in the peer supervision pilot against those under standard supervision, within the same district. Twenty-nine CHWs were selected to participate in three focus group discussions (FGDs). A fourth FGD was conducted among 11 peer supervisors. Three In-Depth Interviews (IDI) were held with the three CHSs and branch manager who directly supported the intervention. The interviews were guided by interview guides tailored to the respondents. The guides also captured background characteristics of all respondents, including

age, sex, and education level, number of households and their villages and the period spent with Living Goods as CHW. The interviews were facilitated by a moderator, who was supported by a note taker. Audio recordings were also made to allow for complete capture of the discussions. Informed consent was sought from all FGD and IDI participants.

Data analysis

Quantitative data was analyzed to generate sums, frequencies and percentages. Graphical presentation of the data was also made to compare CHWs under peer supervision with those who were not.

Qualitative data was transcribed and analyzed using the thematic content analysis approach. A list of themes based on the interview questions was first created. All transcripts were read several times to ensure that their meaning and context were understood. Comparisons of responses across categories, themes and participants as well as locations to examine and triangulate the data to see if there are any differences in understanding of different responses to the evaluation questions was done.

The results of descriptive and analytic statistics are reported here.

Results

Achievement on health KPIs:

Table 3: Comparison of CHWs hitting KPI targets for standard and peer supervision models			
KPIs (% hitting target)	Standard model	Peer supervision	P- Value
U5 sick child assessments	56%	85%	0.041
U1 sick child assessments	65%	89%	0.1292
U5 treatments	32%	41%	0.007
U1 treatments	40%	53%	0.000
On-Time-Postnatal follow up	32%	34%	0.02
CHW attrition rate	17%	10%	0.000

On all key performance indicators (KPIs), the percentage of CHWs hitting pre-set KPIs is higher among CHWs under peer supervision compared with those under the standard model of supervision (*Table 3*). Stock on high impact items among CHWs under the peer supervision model was significantly different ($0.0394 < 0.05$) at 92% compared with 63% among CHWs under the standard supervision model. There was significant difference in attrition with 10% attrition among CHWs under the peer supervision model vs 17% among non-peer supervised CHWs.

Figure 2 shows a comparison of CHW performance aggregated for Jan to December 2019 for the key indicators monitored under the pilot. Overall, there is significantly better performance among CHWs under peer supervision on the number of households visited, number of sick children assessed, sick children identified and treated.

Participant experiences during the pilot

The CHWs were asked to rate their satisfaction with the peer supervision that they had been receiving on a scale of 1 to 5 with 1 = Worst, 2 = Fair, 3 = Good, 4 = Very Good 5 = Excellent. Of the 29 CHWs who participated in the peer supervision pilot evaluation, 23 (79%) rated their experience as excellent while the remaining six (21%) rated it as very good. The main reasons for this high rating was that peer supervisors were more accessible to the peers, were able to solve daily CHW challenges - especially those related with the data collection, work flows and technology use. In addition, the peer supervisors spent more time with the CHWs visiting and providing services to the community members. Whereas the CHSs did not have adequate time for such engagements, the peer supervisors were always available for this.

"It is good and makes me happy that we meet once every week as a group. Because where you were not working well your fellows remind you. PS is very near all the time. He encourages us to work moving among us and we go to the community with her"- CHW

"I would not have enough time with the CHS and some month I would not even see him"- CHW

"I give her 5. The peer leader reaches out to me every week on phone and in person to ensure I have worked. This makes me work as I do not want to disappoint her and the whole group" - CHW

The concept of team work and company while doing work was found to be very attractive, as it helped with working with non-receptive and difficult households. CHWs also appreciated the peer supervision model because it brought medicines and products much closer to them so they did not have to frequently visit the branch for re-stocking. The peer supervisors felt that they had been empowered as leaders.

Benefits according to the Peer Leaders and CHWs	Benefits according to the CHSs
<ul style="list-style-type: none"> • Increased the level of commitment to CHW work. • Enhanced confidence levels. • Achieved a better understanding of CHW work. • Increased efficiency through making work plans and following them. • Increased phone knowledge e.g tethering. • Enabled analytical thinking and problem-solving skills. • Created a healthy competitive life style. • How to handle different personalities. • Become more responsible and highly regarded in society. • Can be a useful method of inducting new CHWs. 	<ul style="list-style-type: none"> • Limited movement as CHWs are met in group as opposed to one on one. • It has empowered some CHWs, especially the peer leaders. • CHWs have medicines and products close to them and are real timely delivered • Peer supervisors provided real time support to their peer CHWs. • Less days in the field. • CHWs can be empowered to lead their fellow CHWs. • New CHWs can be better mentored by their peer CHWs. • Reduced work load with regard to support supervision.

The peer supervisor provided the following advantages: they reinforced CHW knowledge, solved immediate phone issues, supported CHWs to visit unreceptive households, they were accessible in real time, provided timely reminders, helped in syncing data onto the servers, and delivered medicines and products on time. On the other hand, the CHWs relied on the CHSs to provide technical support and to support them with the monthly community events. It was clear that both the CHS and the peer supervisor are important to the CHW, but they play different roles. As such, it was not a mere preference of one model to another, but rather a complementary package.

All CHWs agreed that their experience was much better during the time of peer supervision, but reported that they preferred monthly in-service meetings at the office because they were given a refreshment during the meeting. They suggested a refreshment be provided every time there is a meeting especially the weekly team meetings. The comparisons are summarized below (Table 4).

Table 4
Comparison of before and during peer supervision

Before peer supervision	During peer supervision
<ul style="list-style-type: none"> • CHSs would bring drugs only on a weekly basis to restock CHWs. • The CHWs worked individually amidst all challenges. • Phone challenges would take long to be addressed. • Most field related challenges were addressed by the CHS only and so the response rate was slow. • Interaction and communication between the CHWs was hard because there was no mobilization. • Group field visits were rarely done. • CHWs with small capital would easily feel shy to restock. • Data synchronisation was a challenge. 	<ul style="list-style-type: none"> • Restocking was done at any time as the peer supervisor acted as a mini hub. • Peer supervisors encouraged group fieldwork which made work easier. • The peer supervisors were equipped and trained to work on most phone problems. • The peer supervisors gave immediate support because they are equipped. • The peer supervisors helped to mobilize CHWs, which made communication easier. • Group visits give a better impression during household visits and this raised Living Goods awareness. • Synchronizing was made easier through peer supervisor tethering.

Cost comparison

The total cost to maintain the program per CHW for 1 year was significantly lower with \$176 per CHW under peer supervision vs \$273 among CHWs under the standard supervision model (P-value 0.034). The peer supervision model resulted in a 36% reduction in the supervision and in-service training costs.

Challenges faced

- It was difficult to get some CHWs to participate in the group meetings/ activities as coordination of schedules difficult
- There were challenges with estimating stock for weekly visits and the felling of stock was hectic since the volume has increased and the means are still the same.
- There were other competing activities such as CHW graduations that limited interaction of CHWs on their weekly schedules.
- The CHSs also identified lack of training materials for the weekly CHW meetings as a key hinderance, since they do not have a specific curriculum.
- Untimely disbursement of group incentives led to decreased morale among some CHWs.

Discussion

Our findings during one year of implementation have shown that peer supervision is a feasible and less costly model of supervising CHWs and thus may serve as an effective supervision model for others in Uganda and around the world. The most significant benefit of peer supervision from our study is that it improves ownership of the community health work by the CHWs, encourages team work, and also increases CHW confidence and commitment which ultimately result in improved performance and reduced attrition. Peer supervision also provides a unique opportunity for the peer and supervisor to talk about issues that emerge because of the peer's own life experiences in working in similar life situations.

Our findings on peer supervision are consistent with those reported elsewhere on the impact of supportive supervision on worker performance. In their study, Rowe et al. (2010) and Rowe et al. (2009) found a 27% point difference in children receiving recommended care in intervention compared to control areas with routine supervision. Prior research has also established peer supervision to be a beneficial strategy as peers can empathize with each other outside of a hierarchical setting (Strachan et al., 2012), and more cost effective where traditional supervision is too costly (Kim et al., 2000). Just like in our study, peer mentoring is popular with both participants and managers (Robinson et al., 2001).

We learnt several lessons from implementing this pilot.

1. CHWs must own peer supervision and determine their leadership and their groups where they feel comfortable.
2. Refresher training should follow problem identification rather than relying on assumptions. The supervisor should endeavor to meet the group on a weekly basis to reinforce knowledge and discuss performance with the groups.
3. During the planning phase, one should ensure the geographical distance between CHWs in the group is manageable for the CHWs to meet on a weekly basis.
4. Remuneration/ reimbursement must be given to the CHWs in time, preferably on a monthly basis. Delays in reimbursement and remuneration can reduce CHW motivation.
5. The peer supervision approach is helpful in awakening dormant CHWs.
6. The group visits also increase individual CHW credibility in their own designated areas. The community is able to certify that the CHW is truly a community health worker and not self-imposed.
7. Peer supervision has improved relationships among CHWs, especially the ones in the same peer group, but also has improved the relationship between CHSs and CHWs, as they meet in smaller groups and regularly.
8. A key challenge noted with this model is that it might create tensions between CHWs and their new peer supervisors, particularly if constructive feedback is not given.
9. One CHS should be allocated 6-8 groups instead of the original 5-10 groups. This is with the assumption that a CHS would spend 3 to 4 days a week in the field and would meet 2 groups a day. The peer supervisor should maintain the ratio of 1 peer supervisor: 8-12 CHWs so as to ensure the peer supervisor can effectively supervise each of their CHWs at least twice a month.

Limitations

The pilot had a number of limitations, including: 1) The sample size of CHWs and their supervisors was very low, and therefore may have low statistical power; 2) Potential limited external validity due the study being conducted in only one study district. As such, the results from this pilot should be interpreted as suggestive evidence to the effectiveness of the intervention as we await results from a larger scale program.

Conclusion

Peer supervision is a feasible and less costly model of supervising CHWs and thus may serve as an effective supervision model for others in Uganda and around the world. The most significant benefit of peer supervision from our study is that it ensures ownership of CHW work by the CHWs, encourages team work and improves CHW confidence which ultimately result in improved performance and reduced attrition. Based on these results, the pilot has been extended to cover 1026 CHWs in Mayuge, Mukono, and parts of Wakiso district. An evaluation of implementation at scale in the 3 districts will be conducted in June 2020 to inform the decision to scale out peer supervision to all districts where Living Goods operates.

Abbreviations

CHS

Community health supervisor

CHW

Community health worker

FGD

Focus Group Discussion

IDI

In depth Interview

KPI

Key performance indicator

PS

peer supervisor

Declarations

Ethics approval and consent to participate: Since this was a review of program data, ethical approval was not sought. All data was obtained as part of routine program activities.

Consent for publication: The manuscript does not contain any individual person's data in any form.

Availability of data and materials: The datasets during and/or analyzed during the current study available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests

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Authors' contributions: GN was the primary author of the original paper. AW, PK, EZ, JL, PK reviewed the initial paper and provided major contributions. BSS and FN did data analysis. All authors read and approved the final manuscript.

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Figures

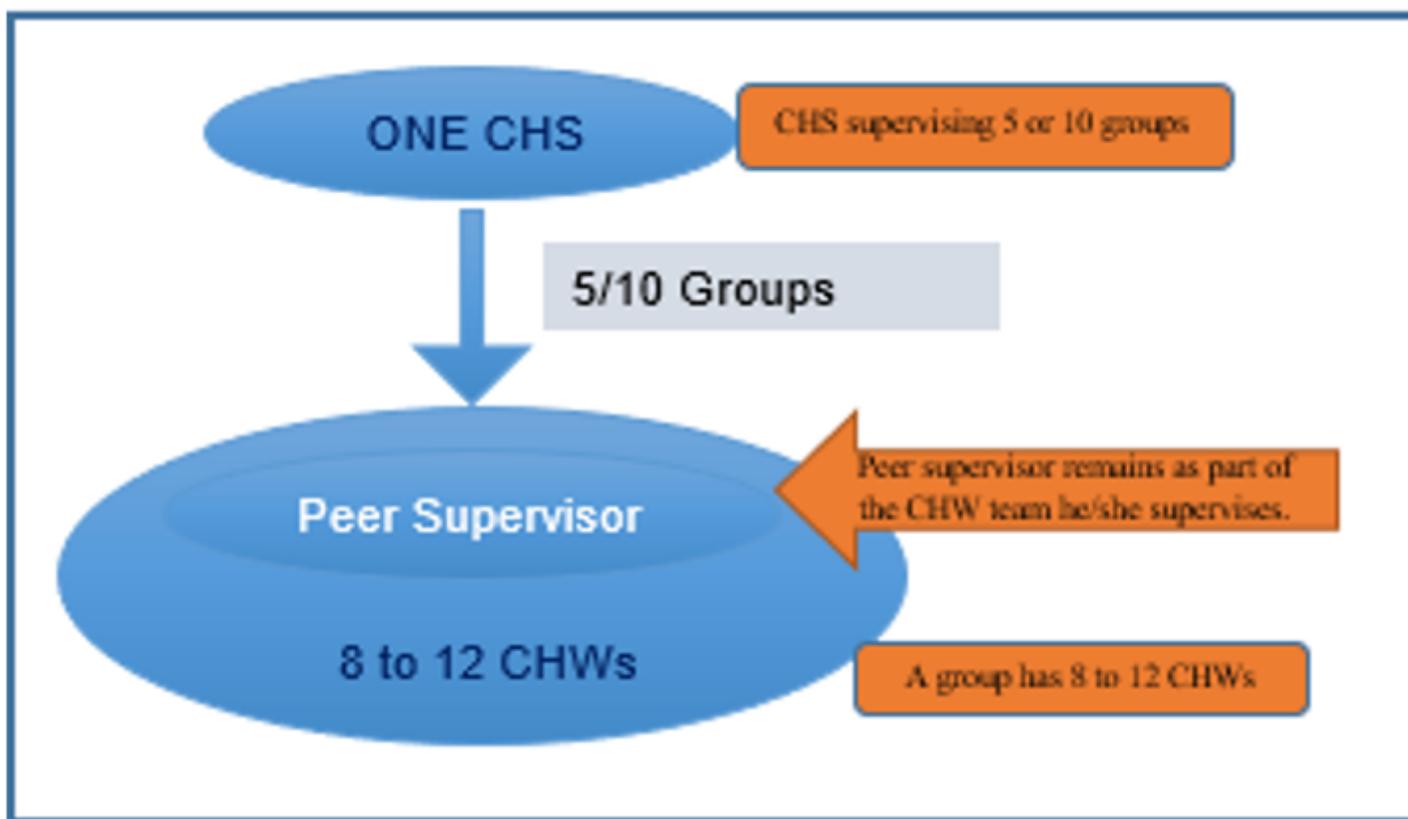


Figure 1

Peer supervisor model

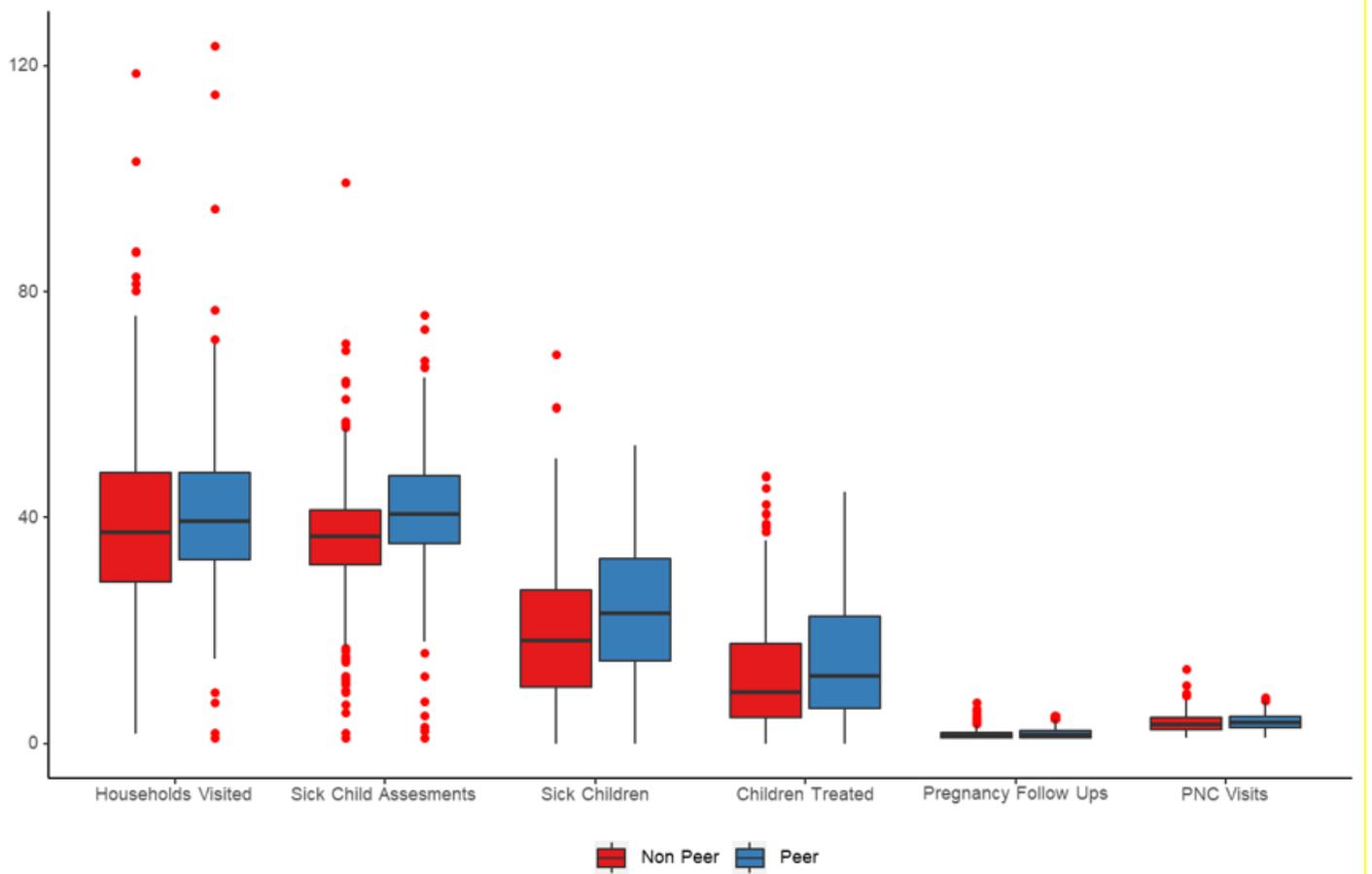


Figure 2

Comparison of CHW performance

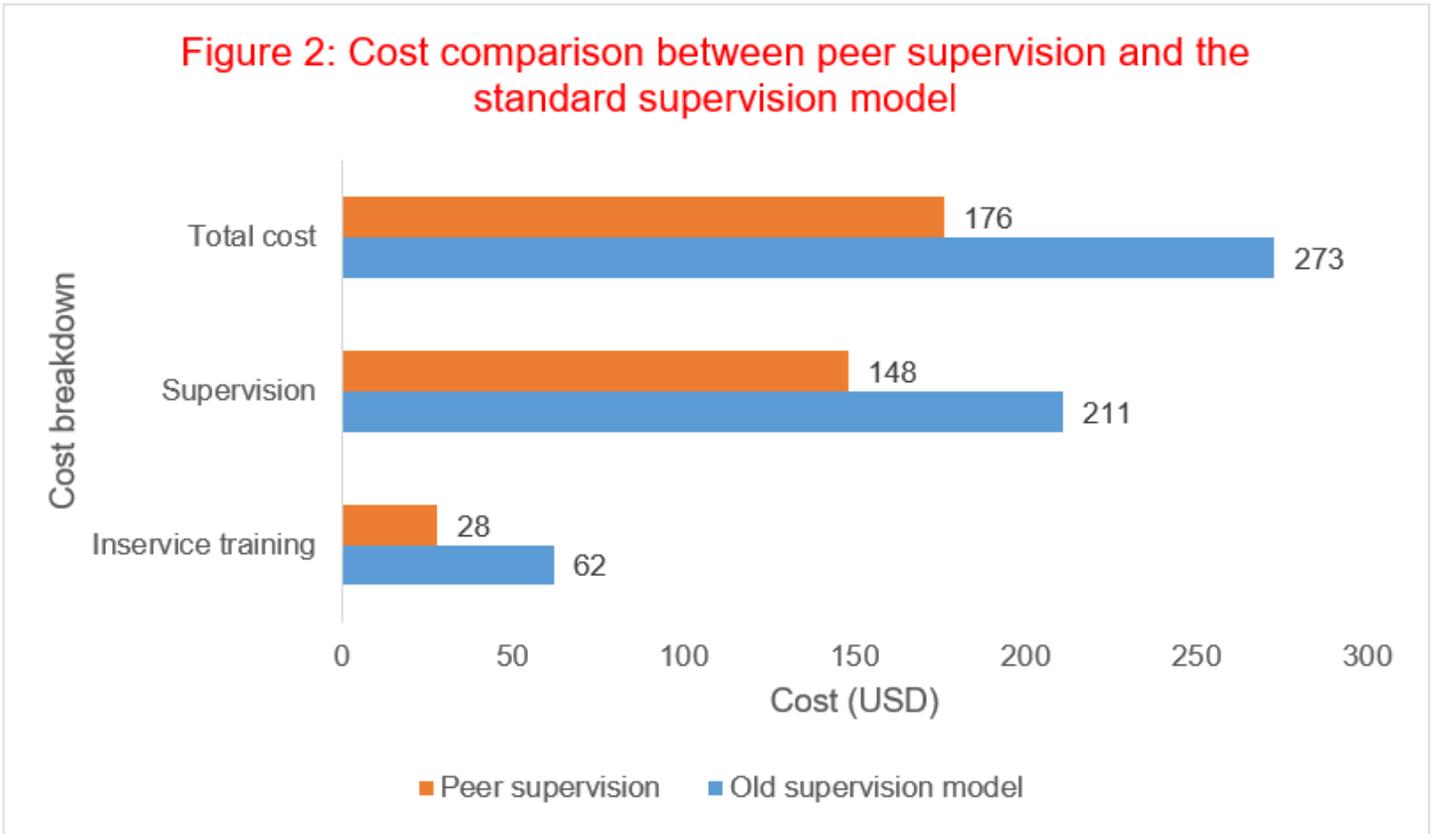


Figure 3

Cost comparison between peer supervision and the standard supervision model