LIST OF TABLES

Table 1. Characteristics of project beneficiaries interviewed 16

LIST OF FIGURES

Figure 1. Provision of home visits by community health workers. 17
Figure 2. Topics covered during home visits. 18
Figure 3. Reported reasons for not receiving a birth kit on the fourth ANC visit. 19
Figure 4. ANC attendance. 21
Figure 5. Delivery location and people present at delivery. 22

ABBREVIATIONS

ANC Antenatal Care
CHW Community Health Worker
SOGH Swedish Organization for Global Health
TBA Traditional Birth Attendant
UDHA Uganda Development and Health Associates (“Partner NGO”)
UNEST Uganda Newborn Study

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EXECUTIVE SUMMARY

This report documents the evaluation of the Maama project following one year of implementation. The project aims at increasing knowledge of maternal and newborn health in the community and the uptake of health services such as antenatal care visits and deliveries at health facilities.

The project is a collaboration between Swedish Organization for Global Health (SOGH) and Uganda Development and Health Associates (UDHA).

Summary of findings

- The CHWs conducted 1,021 home visits during the project year. Every woman interviewed reported getting at least one prenatal home visit and 86% of women received at least one postnatal visit.

- ANC visits at the project clinic increased by 122%.

- The proportion of women completing four ANC visits increased from 12% to 82% and health facility deliveries increased from 70% to 86%.

- A total of 199 birth kits were distributed during ANC visits. Out of the women interviewed, 62% reported receiving a birth kit.

- The assessment indicates that the birth kit is a strong motivator for pregnant women to complete four antenatal visits and to give birth at a health facility by addressing financial barriers.

- The CHWs and the clinic staff have reported an overall empowerment of the community and a decrease in misconceptions and knowledge gaps.

- The community is aware of health issues and the health seeking behavior has increased in the community.

- Even though most women interviewed had received two prenatal home visits, the coverage of postnatal home visits was lower: 31% of women received three postnatal visits and 22% of women received a visit during the first 24 hours after birth.

- The increased demand for health care services has resulted in birth kits running out of stock, increased need for materials and equipment, and longer queues at the health facility.
At community level, continuous education and supervision for the CHWs must be provided in order to ensure quality and timely home visits to all women, with emphasis placed on the first postnatal visit during the crucial 24 hours after birth.

Additional training for the CHWs should be conducted with a special focus on promotion of safe newborn care practices such as immediate and exclusive...

Further education is needed to sensitize other members of the community, including husbands...

Practical challenges for the CHWs, such as long distances and lack of work materials, need to be addressed in order to maintain CHW motivation...

Improved communication between the health facility and project management is critical to prevent future stock outs of birth kits.
1. introduction
Every year, 2.7 million infants die during their first month of life (1). An estimated 99% of these deaths take place in low- and middle-income countries (2). During the past two decades, neonatal death rates have decreased the least in sub-Saharan Africa out of all low- and middle-income regions (3): 29 neonatal deaths occur for every 1,000 live births in the region, compared to 3 per 1,000 in high-income countries (1). At the current rate of change, it will be over a century before an African newborn has the same chance of survival as a baby born in Europe or North America (4), indicating a pressing need for interventions targeting pregnancy, childbirth and the newborn period.

Newborn health and survival are closely related to maternal health. Over half of all maternal deaths in the world are due to preventable causes – hemorrhage, hypertensive disorders and sepsis – that can be addressed with quality antenatal, childbirth and postnatal care, such as completion of four antenatal visits, skilled care during delivery, and postnatal visits during the first week after birth (5). Research has shown that most newborn deaths can be prevented with already available interventions targeting preconception, antenatal, intrapartum and postnatal care. Skilled care during labor is estimated to reduce neonatal deaths by 25% and a combination of clean birth and postnatal care practices can reduce neonatal deaths due to sepsis and tetanus by 40%. (6) Community-based care that includes community mobilization, home visits and improved linkage to health care services has also been estimated to reduce neonatal mortality by 40% (6).
Maternal and newborn health in Uganda

Even though Uganda achieved the Millennium Development Goal 4 by reducing under-five mortality to less than 90 per 1,000 live births, the neonatal mortality rate remains high at 19/1,000 births. Over one-third (35%) of under-5 deaths happen during the first month of life. Uganda fell short of achieving the desired reduction of 5.5% in the maternal mortality rate, and the lifetime risk of death due to pregnancy or childbirth remains high at 1 in 44, with 343 maternal deaths per 100,000 live births. (5)

The health care coverage of essential interventions remains low in the country: demand for family planning is satisfied for only 44% of women, while 48% of women complete four ANC visits, 57% of women have a skilled attendant present at delivery, 33% of women receive postnatal care and 63% of women breastfeed exclusively for the first six months. Large equity gaps between the richest and the poorest remain in satisfied demand for family planning, completion of four ANC visits and presence of skilled attendant at delivery. (5)

Research conducted at the Iganga-Mayuge Demographic Surveillance Site in southeastern Uganda has contributed significantly to the knowledge on the state of newborn health in rural Uganda. The research indicates that 54% of newborns die away from a health facility and half of all newborn deaths are linked to a delay in the decision to seek care. Most newborn deaths in the area happen during the first week of life: 47% during the first 24 hours, and 78% during the first seven days. (7) An additional challenge is lack of knowledge relating to safe newborn care practices, with coverage ranging from 38% for clean cord care, 42% for optimal thermal care and 57% for exclusive breastfeeding (8).
The Maama Project

To address the risks mothers and newborns face in Uganda, SOGH developed a maternal and newborn health project together with Uganda Development and Health Associates. The Maama Project covers Maina Parish, located in Mayuge District in southeastern Uganda. The project area consists of five villages and a private health center financed by the partner NGO. The health center is classified as level II, denoting the most basic level of facility health care out of four possible levels, with village health teams comprising level I.

The Maama Project follows the recommendations outlined in a joint statement by WHO and UNICEF that recommends the uptake of a home visit strategy to reduce newborn deaths (9). The project is based on a community model of two prenatal and three postnatal home visits that has been tested and evaluated by several studies (10–16), including the Uganda Newborn Study (UNEST) conducted in Iganga and Mayuge districts (17,18).
Project activities are carried out by CHWs who have been picked out by local leaders and trained by staff from the Iganga-Mayuge Demographic Surveillance Site. CHWs’ main role is to identify pregnant women and provide two prenatal and three postnatal home visits (on days 1, 3 and 7 after birth).

During postnatal visits, the CHW counsels the woman on safe newborn care practices and family planning. CHWs have also been trained to identify low birth weight babies and provide referrals to health facilities.
To promote hygienic practices during deliveries, the project includes the provision of birth kits (Maama kits), which are pre-prepared, packaged, single-use kits that contain a selection of items pivotal to a hygienic delivery. The kit contains two pairs of sterile gloves, cotton wool, sterile blade, a preparation sheet, a plastic sheet, soap, cord tires and a new child growth and postnatal clinic card. The birth kits are provided by the health facility to pregnant women on their fourth antenatal visit, acting as an incentive for the women to attend ANC four times.
2. evaluation methodology
Aim and objectives

The aim of the evaluation was to assess to which extent the Maama Project has been successful in improving maternal and newborn health in Maina Parish.

The main objective of the evaluation was to describe the change in the community regarding attitudes and behaviors related to maternal and newborn health following one year of implementation. A secondary objective was to identify challenges of the project and remaining barriers related to health service uptake. The qualitative and quantitative key indicators investigated were:

- Completion of four ANC visits
- Delivery with a skilled birth attendant
- Safe newborn care practices
- Number and timing of home visits
- Services and education provided during the home visits
- The role and use of Maama kits
- The role of community health workers in attitude and behavior change
- Perceptions of the successes and challenges of the project

Due to the relatively small number of estimated pregnancies and deliveries in the project area and the small sample size in this evaluation, any effect of the project on maternal or newborn mortality, which are rare outcomes in themselves, could not be investigated.
A mixed-methods design was used to assess the effectiveness of the project. During the evaluation period, both quantitative and qualitative data were collected. In addition, data collected at baseline and during the project year were included in the analysis. All interview tools and questionnaires were developed in English. A Lusoga-speaking interpreter translated all questions and answers during interviews with CHWs, health care staff and project beneficiaries. Interviews with project manager and partner NGO director were conducted in English.

Beneficiary interviews served as the main source of quantitative data. A modified questionnaire based on the Demographic Health Survey (19) was used to interview program beneficiaries. The final questionnaire consisted of the following components: Respondent’s background, Reproduction, Pregnancy and postnatal care, Contraception, and Husband’s background and woman’s work. Additional questions pertaining to antenatal care attendance, community health worker visits and birth kit use were included in the questionnaire. In addition, monitoring tools that were filled in monthly by CHWs and clinic staff during the past 12 months were included in the quantitative analysis.

Qualitative data were obtained through semi-structured interviews with health care staff, project management and community health workers as well as from open-ended questions in the beneficiary interview. All interviews were conducted based on an interview guide developed by the evaluation team. Interviews were recorded and transcribed.
Study population and sampling strategy

All program and clinic staff involved in the project were interviewed. These included ten CHWs, one program manager, two clinic nurses, and the partner NGO director. Beneficiaries were identified through convenience sampling. After interviewing a CHW in their home, they were asked to indicate the area they worked in. Households in the area were visited starting from the house closest to the CHW’s home. Interviews were conducted with all women that were reached and who stated that they had given birth during the past 12 months. The interviews with five women who judging by the size of the child had given birth before the launch of the project ago were excluded from the analysis. The final sample size was 29 women.

Ethics

Consent was obtained from participants orally due to the low literacy rate in the area. Before commencing the interview, the participant was explained the purpose of the interview and they were assured their answers would remain anonymous. They were also explained that they had the right to refuse to be interviewed, refuse to answer any questions and stop the interview at any point in time without providing an explanation.

Data analysis

Quantitative data were analysed with SPSS version 22. Chi-squares and t-tests were used to test the statistical significance of associations. Corresponding p-values and confidence intervals are not presented in this evaluation report, as the small sample size made it difficult to achieve statistically significant differences among groups.

A thematic analysis of the qualitative data was performed to identify categories related to program effectiveness and results. The analysis was based on content analysis, a data-reduction method that aims at reducing qualitative material to categories and themes. Meaning units are first identified in the transcribed material, and thereafter they are condensed, coded, and categorized in categories according to their content (20). This process was conducted intuitively to identify both manifest and latent content, and after analyzing material from interviews with community health workers, clinic staff and management, five categories emerged: Community health worker motivation, Perceived results of the project, Improvements of the project, Challenges, and Male involvement.
3. findings
Characteristics of project beneficiaries

Table 1 presents the characteristics of the study population. The average age of women interviewed was 25. All women were married and most (90%) were living together with their husband. The majority (82%) of women were working as farmers and had completed only primary school (79%).

<table>
<thead>
<tr>
<th>Age at last birthday (mean)</th>
<th>25 (min 18, max 39)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village of residence</td>
<td></td>
</tr>
<tr>
<td>Girigiri</td>
<td>21% (6/29)</td>
</tr>
<tr>
<td>Kyete</td>
<td>21% (6/29)</td>
</tr>
<tr>
<td>Maina</td>
<td>14% (4/29)</td>
</tr>
<tr>
<td>Mwezi A</td>
<td>21% (6/29)</td>
</tr>
<tr>
<td>Mwezi B</td>
<td>24% (7/29)</td>
</tr>
<tr>
<td>Decision-maker for major household purchases</td>
<td></td>
</tr>
<tr>
<td>Woman alone</td>
<td>10% (3/29)</td>
</tr>
<tr>
<td>Together</td>
<td>25% (7/29)</td>
</tr>
<tr>
<td>Husband</td>
<td>66% (19/29)</td>
</tr>
<tr>
<td>Marital status and living situation</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>100% (29/29)</td>
</tr>
<tr>
<td>Living together with husband</td>
<td>90% (26/29)</td>
</tr>
<tr>
<td>Husband has other wives</td>
<td>31% (9/29)</td>
</tr>
<tr>
<td>Decision-maker for healthcare</td>
<td></td>
</tr>
<tr>
<td>Woman alone</td>
<td>38% (11/29)</td>
</tr>
<tr>
<td>Together</td>
<td>31% (9/29)</td>
</tr>
<tr>
<td>Husband</td>
<td>31% (9/29)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Primary school</td>
<td>79% (23/29)</td>
</tr>
<tr>
<td>Secondary school</td>
<td>4% (1/29)</td>
</tr>
<tr>
<td>No education</td>
<td>17% (5/29)</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
</tr>
<tr>
<td>Worked during the past seven days</td>
<td>52% (15/29)</td>
</tr>
<tr>
<td>Worked during past 12 months</td>
<td>76% (22/29)</td>
</tr>
<tr>
<td>Occupation: Farmer</td>
<td>82% (18/22)</td>
</tr>
<tr>
<td>Occupation: Seller of agricultural products</td>
<td>18% (4/22)</td>
</tr>
<tr>
<td>Fertility and family planning</td>
<td></td>
</tr>
<tr>
<td>Total births during lifetime (mean)</td>
<td>4 (min 1, max 10)</td>
</tr>
<tr>
<td>Has lost one or more children</td>
<td>31% (9/29)</td>
</tr>
<tr>
<td>Has experienced one or more induced abortion or miscarriage</td>
<td>28% (8/29)</td>
</tr>
<tr>
<td>Currently using a contraceptive method (including breastfeeding)</td>
<td>100% (29/29)</td>
</tr>
<tr>
<td>Wants more children</td>
<td>62% (18/29)</td>
</tr>
<tr>
<td>Most recent birth</td>
<td></td>
</tr>
<tr>
<td>Most recent birth resulted in live birth</td>
<td>100% (29/29)</td>
</tr>
<tr>
<td>Baby from most recent birth still alive</td>
<td>100% (29/29)</td>
</tr>
</tbody>
</table>

Table 1. Characteristics of project beneficiaries interviewed (n = 29)
Home visits

The CHWs conducted 1,021 home visits during the project year, with each CHW seeing on average 20 women. The project monitoring tools indicated that the CHWs conducted 408 prenatal visits and 613 postnatal visits.

Figure 1 illustrates the coverage of home visits. All of the women interviewed received at least one home visit by a CHW during their pregnancy and 82% received two visits. The women were on average four months pregnant when they received the first visit. This number may be influenced by the fact that the CHWs had to identify and visit women who were already far along in their pregnancy when the project started.

A total of 86% of the women interviewed received at least one postnatal visit. Of all women interviewed, 31% received the designated three postnatal visits. Of all women who received postnatal visits, 22% received a homevisit during the first 24 hours and 70% received a postnatal visit during the first week.

Figure 1. Provision of home visits by community health workers. The percentages reflect the proportion of women interviewed who reported receiving the corresponding number of visits.
Figure 2 illustrates the topics covered during home visits. All women reported that the CHW encouraged the women to do four ANC visits during their pregnancy. Additionally, 97% of women reported that they were counseled on how to prepare for birth and 86% of women were told that they would receive a birth kit on the fourth antenatal visit. During postnatal visits, 76% of women said that the CHW showed them how to care for the umbilical cord. 84% of women said the CHW discussed newborn danger signs, 80% said they discussed benefits of breastfeeding, 84% discussed keeping the baby warm and 72% discussed family planning options. Only 28% of women said the foot length card was used to determine whether the baby was underweight.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>four ANC visits *</td>
<td>100%</td>
</tr>
<tr>
<td>birth preparation</td>
<td>97%</td>
</tr>
<tr>
<td>birth kit on fourth ANC visit **</td>
<td>86%</td>
</tr>
<tr>
<td>newborn danger signs</td>
<td>84%</td>
</tr>
<tr>
<td>thermal care</td>
<td>84%</td>
</tr>
<tr>
<td>exclusive breastfeeding</td>
<td>80%</td>
</tr>
<tr>
<td>clean cord care</td>
<td>76%</td>
</tr>
<tr>
<td>family planning</td>
<td>72%</td>
</tr>
<tr>
<td>footlength measured***</td>
<td>28%</td>
</tr>
</tbody>
</table>

* denotes whether the CHW encouraged the woman to do four visits.
** reflects whether the CHW told the woman that they would receive a free birth kit during the fourth ANC visit.
*** done in order to identify low birth weight babies.

**Figure 2.** Topics covered during home visits. The percentages denote proportion of women interviewed who reported that the topic was covered by the CHW during a home visit.

In case of illnesses or other conditions that the CHW deems to require advice or treatment at a health facility, they are instructed to refer the woman to the nearest facility. A total of 48% of women reported that the CHW had referred them to a health facility during a home visit. Three women reported that the reason for referral was abdominal pain. Other reasons named were headache, malaria and bleeding. CHWs were also referring women for more preventative services such as blood tests to detect HIV, to obtain nutritional supplements, and to get more information about breastfeeding and birth preparedness.
Maama kits

Over the course of the year, 199 Maama kits were distributed during fourth antenatal visits. Out of the women interviewed, 62% reported receiving a birth kit. Further investigation revealed that out of the 11 women who did not receive a birth kit, four had not completed four ANC visits, three of the women reported the kits were out of stock, one woman went on the fourth ANC visit to another clinic outside the project area where she was told to buy a kit. Three women could not provide a reason for not receiving the kit.

![Figure 3. Reported reasons for not receiving a birth kit on the fourth ANC visit.](chart)

The CHWs and the healthcare staff named the Maama kit as an effective incentive for completion of all ANC visits. They also reported that the birth kit has increased the number of women giving birth at health facilities, as it removes the financial pressure for women to obtain the materials themselves, and thus encourages especially poorer women to go to a health facility for delivery.

The health facility staff reported that most of the women bring Maama kits to the facility for delivery, while all women interviewed who had received the birth kit reported using it and all the items in the kit during childbirth. The CHWs were asked whether they knew of instances where a mother had been given a kit but did not bring it to the delivery. The CHWs mentioned cases of sudden onset of labor where the woman did not have time to fetch or pack the kit, and cases where a relative or a friend helped the woman pack for delivery and forgot to bring the kit.
One of the aims of the Maama Project is to increase ANC attendance. Both the CHWs and the health care staff reported an increase in the number of ANC visits, and a rise in the number of women who completed four ANC visits. These reports were confirmed by an analysis of baseline data and data from monitoring tools, and information collected during the evaluation interviews.

Baseline data from May 2013 to June 2014 obtained from the records at Maina clinic indicated that on average, 35 women came for an ANC visit per month, with 12% of women completing all four visits. During the first project year, the average number of visits had increased by 122% to 78 per month (information obtained from monthly monitoring tools and cross-checked with clinic records). The clinic records indicated that 82% of women complete all four visits. In our study sample, 100% of women reported attending antenatal care at least once during the pregnancy. A total of 76% of women interviewed had completed four antenatal visits, which is close to the estimate of 82% from clinic records, and significantly higher than our baseline figure of 12%.

Figure 4. ANC attendance. Baseline figure for attendance of at least one antenatal visit was not available for the project area and was taken from baseline measures of the UNEST study conducted in the same area (17). Due to the small sample size in our evaluation, the figure for completion of four ANC visits at Year 1 was taken from the data collected in the clinic records rather than the data from the interviews.
Deliveries

Another aim of the Maama project is to increase the proportion of health facility births. During the project year, 86% of deliveries took place in a health facility, with a healthcare professional present, compared to 70% from a baseline study in an adjacent area (17). Of all deliveries, 40% took place in the project clinic in Maina and 60% in a health center in Mayuge. TBAs were present in 6% of deliveries, and in 10% of deliveries the only other person present was a relative or a friend. When asked for reasons for choosing to give birth away from a health facility, one woman expressed her trust in the traditional birth attendant while another woman said it was raining a lot, making it too hard for her to get to the health facility.

![Figure 5](image)

Figure 5. Delivery location and people present at delivery.

Immediate and exclusive breastfeeding is one of the safe newborn care practices that had been promoted during CHW home visits. According to the evaluation interviews, 59% of babies were breastfed within one hour of birth, slightly higher than in baseline data from another study (52%) (17). A total of 76% of babies were not given anything besides breast milk during the first three days.
Changes in knowledge, behavior and attitudes

The role of the CHWs – bridging the gap between the community and the health care system

The findings of the evaluation indicate an increase in the number of women attending antenatal care and delivering at facilities. This has been observed by the CHWs, the health care center staff and the management, and may be a result of a change in women’s health awareness and health-seeking behavior. The CHWs describe how they are met with a positive attitude and interest in the services provided in the community. The CHWs report that the women are eager to learn more and to take responsibility for their own health.

Based on their reports, the CHWs seem committed and make an effort to reach and educate pregnant women. As a result, the women feel encouraged and now approach the CHWs to inform about their pregnancy, to get access to services, and for consultation and inquiries in other matters. Through their engagement and sharing of knowledge and information, the CHWs have gradually gained respect and recognition from the community.

The CHWs report increased communication and exchange of information in the community. Women are reported to pass on the information about the Maama Project to other members of the community and pregnant women encourage and refer each other to the CHWs. Women also share with each other their experiences, for example regarding the content and the benefits of the Maama kit and the quality and characteristics of services at the health facility when giving birth.

In addition to the women, other members of the community are approaching the CHWs in similar ways and acknowledge their role as a first contact that the communities have with the health care system and its services. The CHWs also report that women now also have a lower threshold to seek healthcare at clinics. Women seem to be more attracted to the clinics because they know they will get the birth kit, service and access to other services related to pregnancy.
Male involvement

As the communities have become sensitized, CHWs have reported that men are more positive to the project since it not only helps the women, their unborn and newborn babies, but also decreases their own work that would otherwise include retrieving the items in the Maama kit; a costly and time-consuming venture. With sensitization, men have reported to be more concerned about women’s and newborn’s health, give more positive feedback, encourage mothers to attend antenatal care; to be more involved in birth preparedness and also to sometimes go to the antenatal care visits with the mother.

However, this does not apply to all men, and CHWs report that some men and husbands need to be more involved in the pregnancy through obtaining items such as clothes for the baby, as well as providing the mothers money for transportation to health facilities. Men who stay at home or close to the home through work, in comparison to the men who work away from home, are reported to be more positive because they are more involved and more educated and less skeptic or negative.
Overcoming knowledge gaps and lack of resources

The CHWs report a change in the risk perception among women, which has resulted in better birth preparedness. According to the CHWs, the project has made women more aware of risks related to home births and has provided them with the knowledge of how to prepare for a safe birth.

Women did have prior knowledge about the risks associated with home deliveries and absence of skilled personnel from experience and accounts of other women. However, there were also misconceptions, knowledge gaps and lack of resources that formed barriers for seeking health care prior to the launch of the Maama Project. For instance, one of the reasons why women did not give birth at health facilities was that they felt ashamed for not being able to afford the items they were expected to bring. Together with the fact that the birth kits help women to overcome economic barriers for delivering at facilities, the CHWs reported that the project has contributed to cleaner and safer deliveries.

The CHWs described how the birth kits have also improved hygiene when giving birth. Now the clean cotton and pads from the kits are used for cleaning and padding, instead of the dirty cloths, rugs and pads that were used before. In addition, the personal hygiene is also reported to have improved. According to healthcare center staff, women are now better prepared by cleaning themselves before coming to delivery.
The effect of the project was described in terms of an increased capacity in the community to handle a range of health-related issues. The CHWs described how more people show responsibility for their own and their family members’ health, indicating that the project seems to contribute to empowerment of the communities. One CHW described a physical, visible change as a result of her work. After having educated the community about hygiene and sanitation, she could see that people had changed their practices. The CHW described seeing the concrete effects of her work as very rewarding. Furthermore, the increased awareness has been seen in other health behaviors. The CHWs described how women are now taking children for immunization to an increased extent as a result of the work of the CHWs, whose role in the communities has been strengthened with the Maama project.

The CHWs described the increased awareness as a result of the combination of their own work: educating mothers and encouraging them to attend antenatal care as well as the fact that the mothers receive birth kits. The kits seem to function as a physical encouragement and motivation to attend antenatal care. Once mothers have completed all the four visits and have the kits, they are reminded to prepare in other ways for the delivery. In this way, the kits seem to contribute to an overall increased awareness and knowledge about a clean and safe delivery. The CHWs emphasize that the two components – the education and the birth kits – work well together and complement each other.
Challenges during home visits

The CHWs reported a number of practical challenges while visiting households, educating families and interacting with the community in other ways. It is important to take these challenges into account for the future planning and management of the project and develop strategies to manage them. If not handled properly, they may challenge the motivation of the CHWs:

First, there are accounts of people having different views on practices and behavior during pregnancy and motherhood due to different levels of knowledge, culture and religious affiliations. As a result of lack of knowledge, the CHWs reported various misconceptions surrounding family planning methods or birth preparedness practices.

Second, some CHWs report practical challenges in their work due to long distances between households. It is important to consider the time and effort spent, in relation to what the CHWs get in return, in order to keep their motivation high.

Third, the CHWs have been approached with requests they could not meet, such as giving support and advice to families with a child with special needs or assisting with health needs that are beyond their knowledge and responsibility, such as assisting during delivery. For the future of the Maama project, it is important that such requests are taken into account and CHWs are provided with strategies to manage them.

Fourth, some CHWs reported that women expect the CHW to provide them with free items. Some CHWs reported that they are sometimes met with skepticism and an attitude from community members that the CHW are using people’s time without giving enough back. Having to explain their role, resources, knowledge and responsibility might add to the overall strain and burden on the CHWs.
Most women (72%) were happy with the content of the home visits as they were provided. Some women (28%) requested more education during home visits, and brought up the following topics: General health education on maternal health (3); More information about family planning (2); More information about care after delivery and about postnatal services available at facility (2); More information about birth preparation (1). Additionally, one woman mentioned that transport should be organized for CHWs for the home visits and another woman said that the CHW should always use her uniform when visiting.
Both the management and the CHWs mentioned other challenges that arise when the project has resulted in too high a demand for services in relation to resources available.

The increased demand for kits has on several occasions resulted in shortages with the demand exceeding supply. The kits have got out of stock twice during the project year and women who had attended all four antenatal visits could not obtain kits as they had been promised. One CHW expressed that this may put the trust and confidence in the healthcare system at risk.

The health center staff reported long queues at facilities, which may result in project beneficiaries leaving before receiving desired services.

The health center staff further reported that the problem with already insufficient resources at health centers might worsen with increased demand for services and materials such as oxytocin, surgical gloves, birth kits for mothers who come without and transportation for mothers with complications.

The management mentioned occasions where several mothers have come to give birth at the same time, resulting in a lack of space at the facility. In the long run, the facility needs to be strengthened or expanded, but until then, the CHWs and health care center staff may need more support to handle such situations.
The women interviewed named several challenges related to ANC provision when asked what could have been improved with the quality of care. Two women named birth kits being out of stock. Three women pointed out that there is not enough staff at the project clinic and one woman said that the service is slow. Three women mentioned that sometimes the clinic is out of stock on medicines, which have to be bought somewhere else, creating a financial strain. Two women said the clinic is crowded, and that more space is needed.

Some women attended ANC at another facility outside the project area. At this facility, one woman named long queues and the small number of health workers as something that should be improved, while another woman reported that the staff should work more efficiently and pay more attention to the women coming for ANC. One woman reported that she was referred to another health facility and received no help at the facility she originally visited.
Challenges with health facility deliveries

When asked whether there was anything that could be improved regarding the service the women received while giving birth at the project clinic, the women named the following (number of women in parenthesis):

- Have mosquito nets available (1)
- Have more beds in the clinic for delivery and rest afterwards (3)
- Provide more space to separate mothers who are giving birth and mothers who have come for a check-up (2)
- Provide more time to rest after delivery (1)
- Obtain a water tank (1)
- Build an operating room (1)

The women who gave birth at a nearby health center outside the project area named the following challenges:

- Lack of medicines (1)
- Health center refers patients to other clinics where they have to pay for medicines (1)
- No mosquito nets for babies (1)
- Washing rooms are not in a good condition (1)
- Facility is understaffed and there is a lack of care of women (3)
- Pads are not provided after birth (2)

The role of the Traditional Birth Attendants (TBAs)

Although the presence and use of services of TBAs are not widespread in the project area, some women still consult TBAs for particular issues, because they offer services not provided by the health care system. One CHW described how a woman may use a combination of traditional and modern health services by first going to ANC and finding out that the fetus is malpositioned, and then seeking the help of a TBA to correct the issue. TBAs seem to be consulted and trusted although not to the same extent as in earlier times. However, there is a risk for increased use of TBAs if women cannot receive timely and adequate health services due to an overburdened health care system.
4. suggested improvements
Training

The basic training received by the CHWs is reported to be good and comprehensive, but CHWs have requested continuous and ongoing training, especially on family planning, nutrition and care for prematurely born children. CHWs also expressed a desire to learn more about first aid, physical checks during pregnancy and ways to assist during deliveries. However, the latter could to an extent disserve the purpose of the Maama Project if CHWs start providing services that compete with the health care system.

The evaluation data revealed that fewer women receive postnatal visits than prenatal visits, and that only 22% of women receive a postnatal visit during the first 24 hours after birth. Additional training is needed for the CHWs on timing and completion of all visits. CHWs must also be re-educated on the identification, treatment and referral of low birth weight babies, with practical exercises on the use of the foot length card.

Equipment

Throughout the interviews the CHWs expressed the need for gumboots, bags and umbrellas to shield them from the rain during their visits in the community. They also requested bicycles to assist them with transport to households further away. In addition to the current monitoring tool, a log-book to keep track of the mothers, such as where they are in their pregnancy and whether they have given birth or not, was requested from some of the CHWs.

Practical concerns

Some CHWs reported a high workload with many mothers being pregnant, creating a practical concern of time and task-management. This could be made easier by support and advice on a good structure of work, such as planning the visits, keeping track of whom they have educated and about what, when to follow-up and when the birth is expected.
Economic compensation

Due to the time invested in the work with women in the community, and the related sacrifice of costs and other income-generating activities, an increased economic compensation and/or other types of incentives is desired by many of the CHWs in order for them to continue to stay motivated. One possible alternative could be to introduce compensation based on the number of women a CHW visits per month, if it were possible to introduce this system without altering the intrinsic reward the work is contributing with.

Intrinsic reward

The CHWs consistently expressed how intrinsically rewarding the work is, stemming from gaining knowledge and training, educating women about health and increasing awareness in the community, raising the standards of living for others and improving their lives through the work, receiving positive response from the community, and through knowing that women and the community needs the project. The intrinsic reward experienced by the CHWs is something to be maintained through continuous training and education, and by giving the CHWs more responsibilities in association with the pregnant women in the community.

Maama kits

The birth kits running out of stock was identified as an issue of not having established guidelines regarding inventory of kits and communication between the project clinic, project management and SOGH. By establishing specific guidelines as to how and when the communication must take place, this issue could be managed better and ensure that all entitled women have a kit when it is needed the most. If the kits run out despite increased communication, a register of the women who completed their fourth visit and did not receive a kit could be established to ensure the women will receive the kit before delivery.

The CHWs reported that all items in the kit were necessary, while both CHWs and the women suggested a number of items that could be added to the kit. The CHWs suggested the following items: cotton to rub the baby with after birth, a cloth to wrap the baby in after birth, baby, gauze wire, and more soap. Four women said that more items could be added to the kit, and named baby clothing (2), mosquito net (1), and sanitary pads (1).
Health facility

The more effective the project is at encouraging women to take up health services, the higher the strain on the health facility will be. As service uptake at the project clinic increases, waiting times become longer, the workload for the health care workers grows bigger, and more materials will be required. These challenges must be addressed and taken into consideration when planning any expansion of the project. The health facility and its staff must be supported to provide quality and timely health care during and after pregnancy to ensure that women use these services also during their future pregnancies. If the project is expanded, more health facilities need to be involved in the project in order to ensure equal access to services and materials such as the birth kits for all project beneficiaries.
Sensitization of the community

There still remain barriers from seeking health care in the community, such as skepticism towards the project from the community and lack of support, which need to be recognized. The work of the CHWs needs to aim at overcoming these challenges and bridging these gaps with the help of the project management. Further sensitizing the community through outreaches involving everyone in the community, including community leaders, men and the newly relocated, could narrow these gaps.

Furthermore, it is important to continue to work on improved openness and sharing of knowledge and experiences between women. This could be done through women’s groups, where women can share their experiences and ask questions in a supportive environment. The groups could be linked with income-generating activities, contributing to the sustainability of the project. Additionally, even though positive changes have been reported in men’s attitudes towards their responsibilities and support for mothers, a project component targeting specifically male involvement could be beneficial.
In conclusion, the Maama Project has succeeded in its aim to increase health knowledge and health seeking behavior among pregnant women and new mothers in the community. Substantial increases can be seen in the proportion of women who complete four antenatal visits and give birth in a health facility. Even though all women interviewed had not received a postnatal home visit, the coverage of postnatal care is remarkably higher in the project area (86%) compared to the national average (33%) (5).

Increased health knowledge and health-seeking behavior has been reported in the communities, including increased uptake of health services extending past the neonatal period such as childhood immunizations. Women are reported to prepare for birth better than before with increased involvement from husbands. Attitudes towards the project are positive among the community, the project staff and the CHWs.

Despite the encouraging progress, several challenges remain. The increased uptake and demand of health services has resulted in birth kit stock outs, increased need for equipment and materials at the project clinic, and longer waiting times for women seeking health care services. Challenges also remain in the coverage of women who receive an adequate number of home visits, especially postnatal visits, as well as in the identification of low birth weight babies.
86% of women gave birth in a health facility

100% of women received a prenatal home visit

82% of women completed four antenatal visits
6. changes implemented
After the evaluation, several changes were made in order to address the remaining challenges with the Maama Project. These included more CHW training, increased evaluation of CHW performance, improved monitoring of birth kit inventory and increased sensitization of the community. The improvements are described in short below.

**Community dialogues**

A meeting with all community members, including the local leaders and community health workers, has been arranged in one project village every month since July 2015. The aim of the community dialogue is to engage all members in the community in a discussion about maternal and newborn health and give people a chance to ask questions and address issues related to the project. The dialogues also aim to increase male involvement by reaching men who might be away from home during the home visits. The dialogues are organized and run by the project management, CHWs and local leaders of each village. The experiences of the community health workers and project management have been positive, with a reported increase in people’s awareness and acceptance of the project, improved appreciation and recognition of the CHWs’ work, and a high turnout of local residents, with equal numbers of men and women.

**Increased training for CHWs**

An additional training session on the use of the foot length card was arranged for the CHWs during their annual training in June 2015. All CHWs were provided new foot length cards and a practical session was provided, where the CHWs could practice using the card with a newborn baby at the project clinic. The CHWs were also provided with a home visit card that contained a detailed list of things to discuss and check during each prenatal and postnatal home visit, including instructions on the timing of each visit.

**Improved tracking of Maama kits**

Detailed guidelines were developed to prevent future stock outs of Maama kits. These guidelines include instructions for the clinic and project management on keeping track of the number of kits and reporting to SOGH when the number of kits is 20 or less.

**Increased evaluation of home visits**

In order to better monitor and address gaps in knowledge, the project manager has been evaluating the CHWs’ performance during home visits once a month since July 2015. The evaluation is conducted using a standard evaluation form, which specifies the topics that should be covered during the visit. At the end of the visit, the CHW is given feedback on their performance and ways they can improve the service they provide.


4. Lawn JE, Blencowe H, Oza S, You D, Lee AC, Waiswa P, et al. Every Newborn: progress, priorities, and potential beyond survival. Lancet. 2014 Jul 18;384(9938):189–205.


