

Birth Companionship in a Government Health System: A Pilot Study in Kigoma, Tanzania

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Abstract

Background: Having a companion of choice throughout childbirth is an important component of good quality and respectful maternity care and has become standard in many countries. However, there are only a few examples of birth companionship being implemented in government health systems in low-income countries. To learn if birth companionship was feasible, acceptable and led to improved quality of care in these settings, we implemented a pilot project using 9 intervention and 6 comparison sites (all government health facilities) in a rural region of Tanzania.

Methods: The pilot was developed and implemented in Kigoma, Tanzania between July 2016 and December 2018. Women delivering at intervention sites were given the choice of having a birth companion with them during childbirth. We evaluated the pilot with: (a) project data; (b) focus group discussions; (c) structured and semi-structured interviews; and (d) service statistics.

Results: Over 80% of women delivering at intervention sites had a birth companion who provided support during childbirth; including comforting women and staying by their side. Most women interviewed at intervention sites were very satisfied with having a companion during childbirth (96%–99%). Most women at the intervention sites also reported that the presence of a companion improved their labor, delivery and postpartum experience (82%–97%). Health providers also found companions very helpful because they assisted with their workload, alerted the provider about changes in the woman's status, and provided emotional support. When comparing intervention and comparison sites, providers at intervention sites were significantly more likely to: respond to women who called for help ($p=0.003$), interact in a friendly way ($p<0.001$), greet women respectfully ($p<0.001$), and try to make them more comfortable ($p=0.003$). Higher proportions of women who gave birth at intervention sites reported being "very satisfied" with the care they received ($p<0.001$), and that the staff were "very kind" ($p<0.001$) and "very encouraging" ($p<0.001$).

Conclusion: Birth companionship was feasible and well accepted by health providers, government officials and most importantly, women who delivered at intervention facilities. The introduction of birth companionship improved women's experience of birth and the maternity ward environment overall.

Background

Despite progress in Tanzania, maternal and perinatal mortality rates remain high. According to the most recent Demographic and Health Survey (2015–2016), the maternal mortality ratio in Tanzania is 556 maternal deaths per 100,000 live births and the neonatal mortality rate is 25 per 1,000 live births(1). The Government of Tanzania is committed to reducing maternal and neonatal mortality and has developed evidence-based strategies and targets in support of that goal(2–4). The current strategy aims to reduce maternal and neonatal mortality by increasing institutional deliveries to 80% and increasing the coverage of good-quality emergency obstetric and newborn care (EmONC) services at all levels of the health system by 2020(2–4).

Since 2008, Thamini Uhai/Vital Strategies' maternal health program has contributed to the Government of Tanzania's efforts to reduce maternal and neonatal mortality by improving women's access to high-quality EmONC services in Kigoma, a region in the Western Zone of the country. Kigoma, a mostly rural region situated next to Lake Tanganyika, has a population of 2.4 million with an estimated 92,000 births per year(5, 6). Historically, Kigoma has lagged behind other regions in Tanzania in terms of maternal, reproductive, and neonatal health indicators(1, 7), due in large part to limited availability of good-quality services and a severe shortage of skilled health professionals(8–10). To address these issues in Kigoma, Thamini Uhai/Vital Strategies and its partners increased the availability and improved the quality of skilled birth attendance and EmONC services at 33 health facilities (3 hospitals, 12 health centers and 18 dispensaries)—where about two-thirds of women in Kigoma receive delivery care—and launched regional multimedia campaigns promoting birth preparedness and the importance of facility delivery. While these actions likely contributed to increasing facility deliveries (from 48% in 2011 to 55% in 2015)(11), many women continued to deliver outside of health facilities(12).

A systematic review of factors influencing place of delivery found a range of barriers for women seeking a facility delivery, including: traditional and family influences, distance to facility, cost, and a lack of supportive attendance and comforting care at facilities(13). When they do seek facility delivery, many women feel neglected, experience negative interactions, and receive disrespectful care from the few health providers present(14–17). A discrete choice experiment in Kigoma region demonstrated that providers' attitudes toward women are an important factor in women's decisions about where to deliver(18). Another study, in Eastern Tanzania, showed that disrespectful and abusive care was an important deterrent to facility delivery(19).

With approximately 4 health providers per 10,000 population in Kigoma(9), women may not be able to receive one-on-one supportive care during and after childbirth at health facilities. In addition, the stressors that are often present in low-resource, rural health care settings contribute to low job satisfaction among providers and lack of woman-centered care at birth in Tanzania(20). Furthermore, women in Kigoma have historically been discouraged or barred from bringing a companion of their choice with them into the labor/delivery room at government health facilities(21). The literature shows, however, that what matters most to women during childbirth is giving birth to a healthy baby in a safe environment with support from birth companions and skilled, kind staff(22). Therefore, in order to increase facility deliveries in Kigoma, it is important to improve facility environments and quality of care and ensure that women feel supported during childbirth.

The World Health Organization recommends having a companion of choice throughout child birth as an important component of good quality and respectful maternity care(23–25). Companionship, including continuous emotional and social support during childbirth, improves maternal and newborn health outcomes as well as women's satisfaction with care(26). Companions provide informational, practical and emotional support and can serve as advocates for women(26, 27) and their use has become standard in many high-income countries. However, there are few examples of birth companionship being implemented or incorporated into health systems in low-income countries(27–32).

In recognition of current evidence and global recommendations, the Government of Tanzania and Thamini Uhai/Vital Strategies implemented a pilot project in Kigoma to study the feasibility and acceptability of introducing birth companionship into the government health system. Implementers also wanted to learn if birth companionship would improve women's experience of care, increase utilization of health facilities for childbirth, and/or improve the quality of maternal health services provided in intervention facilities. Thamini Uhai/Vital Strategies partnered with the U.S. Centers for Disease Control and Prevention, Division of Reproductive Health (CDC/DRH) and the Averting Maternal Death and Disability Program (AMDD) at Columbia University (through partnerships with Ifakara Health Institute and ICAP Tanzania) to document the implementation process and evaluate the pilot results.

Methods

Pilot Description

The birth companionship pilot was developed and implemented between July 2016 and December 2018. Intervention and comparison sites were 15 health facilities (hospitals and health centers) that had been upgraded and supported by Thamini Uhai/Vital Strategies and its partners to provide good-quality comprehensive EmONC, including obstetric surgery. EmONC improvements were part of a larger program funded by Bloomberg Philanthropies and Fondation H&B Agerup called the *Program to Reduce Maternal Deaths in Tanzania*; Thamini Uhai/Vital Strategies received additional funding from the Blue Lantern Foundation to design and implement the birth companionship pilot. Inclusion of health facilities in the intervention group was based on guidance from regional health officials and a health facility assessment conducted by Thamini Uhai in 2016, which looked at the layout of maternity wards and extent of renovations needed to ensure privacy. Intervention sites supported women to receive birth companionship in 1 district hospital (in an urban area) and 8 health centers (7 in rural areas and 1 in an urban area; Fig. 1). The remaining 2 hospitals and 4 health centers supported by Thamini Uhai and its partners to provide good-quality EmONC were designated as pilot comparison sites (Fig. 1). No dispensaries were included in the pilot.

Pilot activities started with a development phase (from July 2016 to September 2017) followed by an implementation phase (from October 2017 to December 2018). (Fig. 2) The implementation phase was aided by results of continuous monitoring and qualitative research.

Development Phase

A participatory approach was used to ensure that the introduction of birth companionship responded to the needs and concerns of women and health providers and strengthened rather than stressed relationships between communities and the health system. This was accomplished through formative research and incorporating stakeholders into all aspects of the pilot's design and implementation.

Formative Research

Thamini Uhai/Vital Strategies collaborated with AMDD to conduct formative research before the pilot to gain a deep understanding of the perceptions and norms around childbirth and birth companionship and to identify potential barriers to and facilitators for implementation. In August 2016, AMDD conducted 31 interviews with women who had recently delivered at facilities or at home, health care providers and administrators, community leaders, and traditional birth attendants. They also conducted seven focus group discussions with women and health facility staff. The responses were mixed. Women and providers could both imagine some benefits. Women thought that companions could help support them during labor and providers saw the value of companions helping them with their workload. On the other hand, providers raised concerns about introducing someone new into the birthing "experience." They mentioned concerns about privacy, limited space, infection prevention, fear of companions conducting unsafe practices, accountability, interpersonal relations and the potential to increase their workload. Women shared many of these concerns but were most vocal about auditory and visual privacy and a worry that other women's companions might gossip about how they handled childbirth.

Birth Companionship "Code of Good Practice"

Formative research results were presented to government officials, health providers and community members during a 4-day workshop in June 2017. The multi-stakeholder group then developed a "Code of Good Practice" which lays out the rights, roles, responsibilities, and limitations of birth companions (33). Participants defined 2 types of birth companions: (a) "desired birth companions," selected by women during pregnancy and brought from their home or village to the facility; and (b) "on-call birth companions," selected by communities and based at intervention facilities. All birth companions were female; due to the physical layout of the maternity ward and limitations in space, and in respect of other women's privacy, it was decided that men could not be birth companions during the pilot.

During antenatal care visits and informational sessions in communities, pregnant women were informed that they could choose to bring a companion from home (a "desired birth companion" or DBC) or have a companion from the health facility (an "on-call birth companion" or OBC). Women were encouraged to make their own decision of whom to bring as their birth companion. If a woman chose to have a DBC, the companion would be allowed to enter the labor room when she presented a special badge, which she received following 2 orientation sessions. Orientations were held during antenatal care visits at intervention facilities and were also provided by community health workers in communities. If a woman chose, either during pregnancy or upon her arrival at a facility during labor, to have an OBC, she would be assigned to one of the available companions. All OBCs received 2 days of training and monthly supportive supervision from Thamini Uhai staff. Each health center had 3 OBCs and the hospital had 6 OBCs.

Both DBCs and OBCs were instructed to provide continuous emotional, informational and practical support to women throughout childbirth in the labor, delivery and postpartum wards. Desired companions were also instructed to provide support to women at home during pregnancy and to the woman and her baby when they returned home (Table 1).

Table 1
Status, training, distribution, and compensation of desired and on-call birth companions

| | Desired birth companions | On-call birth companions |
|---|--|---|
| Recognition as "birth companion" | Recognized and allowed to enter the labor room when they presented a special identification badge, which they received following two sessions of orientation. | Recognized as "on-call birth companions" once they completed training. |
| Orientation and training | <ul style="list-style-type: none"> • Orientation held during antenatal clinics at pilot facilities and provided by community health workers in communities. • Orientation covered: women's roles as birth companions, what birth companions are not allowed to do, patients' rights and how birth companions could prevent infecting themselves, the women they accompany, other women in the maternity ward and newborns. • Received a refresher at time of labor / delivery and received tips from on-call birth companions on nonmedical comfort measures. | <ul style="list-style-type: none"> • Received 2 days of training which explained the benefits of continuous support during childbirth and reviewed the Code of Good Practice including their roles and responsibilities, what they were not allowed to do and infection prevention practices. • Also received additional training on nonmedical comfort measures. |
| Availability and coverage | Not applicable | <ul style="list-style-type: none"> • 3 companions selected and trained in each intervention health center. Due to a very large caseload, the intervention hospital had 6 companions. • A roster ensured 24/7 coverage at facilities. |
| Compensation | None from project | Received a monthly stipend, mobile phones with closed user group connection, monthly airtime recharge, uniform, and on-call/night shift allowance. |

Preparation of Intervention Sites

To ensure auditory and visual privacy at intervention sites, existing labor/delivery rooms were renovated and divided into individual rooms, each containing delivery beds, resuscitation tables for newborns, and chairs for birth companions. To address health providers' concerns about infection prevention, additional hand-washing stations were added. OBCs were given uniforms, and all companions were asked to wear sanitized footwear once inside the maternity ward to prevent infection and were trained on the proper handling and disposal of waste.

The team conducted orientation meetings with health providers and government officials to explain the pilot, to discuss the benefits of continuous support during labor and delivery, and to determine how to inform expectant mothers about companionship. Any reservations about allowing birth companions into maternity wards were also discussed with Thamini Uhai. Health provider turnover and/or rotation was typically high in Kigoma facilities, so orientation sessions were repeated for health providers as needed.

Implementation Phase

Ongoing Support for Birth Companions

To ensure quality of care and adherence to the Code of Good Practice, professional support, supervision and training were provided to birth companions during the implementation phase at the intervention sites. Midway through implementation, a U.S.-based certified doula and childbirth educator facilitated trainings on nonmedical comfort measures; participants included the Thamini Uhai birth companion supportive supervision team, all 30 OBCs, and labor ward in-charges and reproductive and child health in-charges from the 9 intervention sites. The training covered the benefits of continuous labor support, the connection between reducing stress and better birth outcomes, and demonstration of various nonmedical comfort techniques (e.g., breathing exercises, singing, massage) using locally available resources.

Community Engagement

Promotion of birth companionship was incorporated into a Thamini Uhai/Vital Strategies mass media campaign that aimed to increase birth planning and facility delivery. The campaign, which ran from February to mid-May 2018, featured radio ads and interpersonal communication, supported by flyers, posters, billboards, community events and a 12-part radio magazine show. In addition, 49 community health workers were trained to promote birth companionship during antenatal care, household visits, and at community events, including 9 community leaders' meetings and 16 public rallies.

Implementation Monitoring and Support

Thamini Uhai made monthly supportive supervision visits to every intervention site to ensure that the Code of Good Practice(33) was being followed by facility staff, to collect monitoring data, to address implementation issues, and to provide on-the-job training for OBCs and community health workers. Government officials were regularly updated on the progress. Implementation research was conducted by AMDD, in collaboration with Thamini

Uhai/Vital Strategies, at 3 points (April, July and December 2018); the findings were used to quickly address any problems and to document important lessons about implementation.

Data sources and analysis

We used 5 data sources to monitor and evaluate the pilot activities: (a) routine pilot monitoring data (quantitative); (b) implementation research focus group discussions and interviews (qualitative); (c) women's exit interviews (quantitative); (d) provider interviews (quantitative); and (e) external pregnancy outcome data collected annually (quantitative). Women's exit interviews, provider interviews and pregnancy outcome data were collected for intervention sites as well as comparison sites. In the sections that follow, the 9 health facilities included in the birth companionship pilot are referred to as "intervention sites" and the health facilities only receiving EmONC support from Thamini Uhai are referred to as "comparison sites"; both types of sites continued to receive the same ongoing EmONC support from Thamini Uhai, as described above. Participating organizations received ethical approval from the National Institute for Medical Research in Tanzania to conduct and evaluate this pilot. Written consent was obtained from all participants before they participated in the pilot and/or were interviewed; verbal consent was received from all focus group discussion participants.

Routine Data Collection

Thamini Uhai collected woman-level data from facility maternity registers where health providers in all intervention facilities recorded whether a birth companion was present at any point during labor and delivery and if she was an OBC or DBC. In addition, women were asked to complete a short interview after discharge; the interviews were administered by OBCs and were used in this evaluation to document companion's relationship to the mother (e.g., OBC, sister, mother, friend). These data were collected in routine monthly reports and analyzed in Excel.

Implementation Research

During the project implementation period, AMDD employed qualitative data collection techniques, collecting data from the 9 intervention sites at 3 different time periods (though not all sites were visited each time). In total, 21 focus group discussions were conducted with women of reproductive age who had given birth with a birth companion in intervention sites. Fifty-six in-depth interviews were conducted with facility in-charges, labor ward in-charges, village executive officers, birth companions, regional health management team members, community health workers, district council health management team members, and Thamini Uhai project staff to explore experiences and perceptions of the pilot. Focus group discussion and interview participants were purposively sampled. Data were audio recorded, transcribed, translated to English and analyzed beginning with a set of a priori codes and allowing additional codes to emerge when reading through the initial transcripts. Inter-coder reliability was established by each team member independently coding the same 2 transcripts, and then deliberation of the codes until consensus was reached. The final codebook was then exported into NVivo 11 software which was used to code all transcripts. Code reports were extracted and the results were further coded into subthemes; narrative scripts were also produced with supporting quotes for emphasis and clarification of codes.

Providers and Women Exit Interview Survey

The CDC/DRH led a team that conducted facility-based providers and women exit interview surveys in intervention and comparison sites during the last month of the companionship pilot to: (a) document the prevalence of companionship during labor, delivery and postpartum; (b) describe women's and provider's experiences and perceptions; (c) assess women's satisfaction with care and their perceptions and receipt of quality maternity care services, including respectful care; and (d) describe maternity care practices and job satisfaction among providers. The survey consisted of facility-based interviews with delivery providers and exit interviews with women who had just given birth. Trained data collectors organized in 15 teams conducted interviews in all pilot sites from December 1 to 21, 2018.

The survey teams interviewed all health workers who provided delivery care during the data collection period including: (a) clinicians (medical doctors, specialists, assistant medical officers, clinical officers, assistant clinical officers, and clinical assistants); (b) nurses/midwives; and (c) other staff such as medical attendants and maternal and child health aides. Women were eligible for inclusion if they were 15 to 49 years of age, delivered at the facility during the data collection period, had any mode of delivery or birth outcome, and had the capacity to understand and respond to questions. Women were approached by an interviewer at the time of discharge, with the aim of having a census of all women who met inclusion criteria. All women agreed to participate.

Interviewers administered face-to-face questionnaires that were developed by CDC with feedback from stakeholders (the *Client Birth Companion Questionnaire* and *Provider Birth Companion Questionnaire*). Initial versions of the questionnaires were developed as part of similar provider and client surveys conducted region-wide in 2016 and 2018 (34). Questionnaires were translated from English to Kiswahili and back-translated to English; additional birth companionship questions were added in November 2018. Interview guides were developed in English and translated into Kiswahili. Interviewers were trained in quantitative interview techniques and ethical considerations and conducted all interviews in Kiswahili. The key variables used for sample size calculations of women were: companion in labor; companion at the time of birth; and women's satisfaction. At least 250 women were needed in each sub-group (intervention and comparison health facilities) to detect 10% relative mean differences in women's use of a companion in labor and at the time of birth, and overall women's satisfaction, with 90% power and an alpha = 0.05, assuming a standard deviation of 10.

Included in the analysis were: (a) data from providers who had cared for at least 1 woman who completed an interview (N = 168); and (b) data from women whose provider was also interviewed (N = 1,089). Descriptive univariate analyses on women and provider data were performed on indicators of interest by site status (intervention/comparison) and facility type (hospital/health center). Analyses were conducted in Stata 14.1. An unpaired Student's

t test was used to identify differences in key variables by intervention and comparison sites; a value of $p < 0.05$ was considered statistically significant. (Fig. 3)

Pregnancy Outcomes Monitoring Surveys

As a partner of the *Program to Reduce Maternal Deaths in Tanzania*, the CDC/DRH role has been to evaluate the efficacy of the program’s activities and their impact. CDC conducted 4 Pregnancy Outcomes Monitoring Surveys (POMS)—in 2013, 2016, 2018 and 2019—and collected retrospective individual-level outcome data on all births that occurred in all health facilities in Kigoma with a minimum of 90 deliveries per year (6, 11, 35). Using a package of standard tools, CDC/DRH teams obtained comprehensive maternal and newborn health information from labor and delivery registers, operating theater registers, admission and discharge registers, nurses’ report books, and other facility documents. These data were used to compute standard EmONC and maternal and newborn health outcome indicators and track changes over time. For the birth companionship pilot, the POMS data were also used to identify any substantial differences between outcomes of women who delivered during 2 15-month periods (pre-implementation, July 2016–September 2017 and implementation, October 2017–December 2018) in the intervention and comparison sites.

POMS facility-based mortality indicators included: direct obstetric case fatality rate; facility maternal mortality ratio; intrapartum stillbirth rate; and pre-discharge neonatal mortality rate. They were calculated for the 2 15-month periods, in the intervention and comparison sites. The direct obstetric case fatality rate was defined as the proportion of all women admitted to intervention/comparison facilities with a severe direct obstetric complication who died before discharge. The facility maternal mortality ratio specifically estimated the number of maternal deaths per 100,000 live births in intervention/comparison facilities. The intrapartum facility stillbirth rate was calculated as the number of intrapartum stillbirths (those occurring after the onset of labor but before birth) divided by the total number of births per 1,000 facility births in intervention/comparison facilities. The pre-discharge neonatal mortality rate was calculated as the number of facility neonatal deaths divided by the total number of facility live births per 1,000 live births in intervention/comparison facilities.

Statistical significance of the change in mortality rates and ratios between pre-intervention and intervention periods was evaluated separately for intervention and comparison health facilities using a 2-proportion z-test.

Findings from all 5 data sources are used to show whether birth companionship was feasible and acceptable to women and health providers, and to learn if birth companionship improved women’s experience of care, improved the quality of maternal health services, and/or improved health outcomes.

Results

Birth Companionship Utilization

Thamini Uhai’s routine monitoring found that 82% of women delivering at intervention sites over the 15 months of implementation had a companion. This was similar to the exit interviews conducted in December 2018 that found that 83% of women delivering at intervention sites at the time of the study had a companion during labor, at the time of birth, or during the postpartum period (Table 2 and Table 3). Use of birth companions increased over time, from 59% in October 2017 to 83% in December 2018 (Thamini Uhai; data not shown). At the health center level, 91% of women delivering had a birth companion, while uptake at the intervention hospital was lower (65%; Thamini Uhai; data not shown). Most women (69%) who had a birth companion learned about the pilot during antenatal care. Other women found out when they arrived at the facility (22–29%) or from a friend or family member (15–18%) (exit interview; data not shown).

Table 2
Utilization of birth companions during implementation

| | Facilities | Time period | Number of Women | Any birth companion# N (%) | For women with birth companions | |
|--|----------------------|----------------------------|-----------------|-------------------------------|---------------------------------|----------|
| | | | | | DBC % | OBC % |
| Births in health facilities ^a | 9 intervention sites | October 2017–December 2018 | 16,465 | 13,551 (82.3) | 28.2 | 71.8 |
| Women interviewed* | 9 intervention sites | December 2018 | 603 | 501 (83.1) | 55.1 | 44.9 |
| Women interviewed* | 6 comparison sites | December 2018 | 486 | 100 (20.6) | 100.0 | NA |

Abbreviations: DBC=Desired birth companion; OBC=On-call birth companion; NA=Not applicable

^a Source: Thamini Uhai monitoring data

* Source: exit interviews

Had a DBC or OBC during labor, at the time of birth, or during postpartum

Among women who had companions, 72% had OBC support (Thamini Uhai; Table 2). Use of OBCs was highest in the intervention hospital (86%) and the one urban health center (96%) (Thamini Uhai; data not shown). Focus group participants thought that many women used OBCs because: they did not know they could bring a female companion from home; the DBC they selected was not available at the time of delivery; they did not have someone to bring from home; their DBC did not have the required badge; or they preferred to use an OBC (AMDD).

Use of DBC support increased overtime. In the first month of implementation (October 2017), only 7% of women with companions used DBCs (Thamini Uhai; data not shown). By December 2018, 55% of women with companions used DBCs (exit interviews; Table 2). Throughout implementation, a third of women delivering with companions in health centers (33%) were supported by DBCs, while 14% of women delivering with companions in the intervention hospital used DBCs (Thamini Uhai; data not shown). DBCs in health centers and hospitals were most often female family members (most frequently a mother-in-law, own mother, or sister) or friends (Thamini Uhai; data not shown). When considering whom to select, women said they wanted someone “close” to them, with whom they felt comfortable, including feeling that they could ask for help, even with embarrassing things like using the bathroom. A “trustworthy” person was most often described as someone who would “keep secrets,” and not tell anyone else in the community how the woman behaved during labor. Many women also described choosing someone who lived nearby, who would be helpful or “sharp,” and not too old, but old enough to have had enough personal childbirth experience to be helpful (AMDD).

In December 2018, 83% of women who were interviewed in intervention sites had a companion at some time during childbirth, including 77% of women who had a birth companion during labor, 68% at the time of delivery, and 57% in the postpartum period. DBCs were present at all stages of childbirth whereas OBCs were present primarily during labor and delivery. In comparison sites, only 6% of women had a companion in labor, 2% had one at the time of delivery, and 19% had one in the postpartum period; one in five women delivering in comparison sites (21%) had a companion during at least one period of time. (exit interviews; Table 3)

Table 3: Companionship during labor, at the time of birth and postpartum by site status

| Reported Companionship | Women in intervention sites | Women in comparison sites |
|--|-----------------------------|---------------------------|
| | N=603 | N=486 |
| | % | % |
| Had a companion during at least one period of time: labor, birth or postpartum | 83.1 | 20.6 |
| Had a companion during <u>labor</u> (% yes) | 76.5 | 6.2 |
| Had a companion at the <u>time of birth</u> (% yes) | 67.8 | 2.3 |
| Had a companion during the <u>postpartum period</u> (% yes) | 56.9 | 19.1 |

Source: exit interviews, December 2018

Types of Support Provided by Birth Companions

Quantitative data from exit interviews indicated that birth companions provided emotional, practical and informational support to women during labor and delivery and in the postpartum period. During labor, women most commonly reported that companions: gave them advice/instructions (61%); comforted them with kind words, singing, prayer, etc. (57%); gave them fluids to drink (50%); and stayed by their side for the majority of time (43%). OBCs and DBCs offered slightly different types of support during labor: OBCs more commonly stayed by women’s side for the majority of time (68% on-call vs. 33% desired companions) and communicated with staff (56% on-call vs. 33% desired companions), while DBCs more commonly gave women fluids to drink (44% on-call vs. 53% desired companions) and food to eat (10% on-call vs. 24% desired companions). During delivery, women reported that companions: gave them advice/instructions (60%); comforted them with kind words, singing, prayer, etc. (55%), and stayed by their side for the majority of time (49%); OBCs more commonly provided these types of support compared to DBCs. During the postpartum period, women reported that birth companions gave them food to eat (89%), cleaned their clothes/linens (81%), and gave them fluids to drink (80%). Many DBCs also helped women care for their babies (64%) during the postpartum period. (exit interviews; Table 4)

Table 4: Women’s reports of types of support given by birth companions at intervention sites

| Support type | During labor | | | At time of birth | | | Postpartum | | |
|---|--------------|-------|-------|------------------|-------|-------|------------|------|-------|
| | % | | | % | | | % | | |
| | DBC* | OBC^ | Total | DBC* | OBC^ | Total | DBC* | OBC^ | Total |
| | N=327 | N=134 | N=461 | N=204 | N=205 | N=409 | N=331 | N=12 | N=343 |
| Cleaned my clothes/linens | 15.9 | 3.7 | 12.4 | 13.7 | 2.3 | 8.3 | 82.8 | 33.3 | 81.1 |
| Comforted me with kind words, singing, prayer, etc. | 49.9 | 73.9 | 56.8 | 43.1 | 65.9 | 54.5 | 16.9 | 25.0 | 17.2 |
| Communicated with family/husband | 2.8 | 3.0 | 2.8 | 6.9 | 3.9 | 5.4 | 10.3 | 8.3 | 10.2 |
| Communicated with staff | 32.7 | 56.0 | 39.5 | 11.8 | 16.6 | 33.3 | 12.7 | 0.0 | 12.2 |
| Gave me advice/instructions | 51.7 | 83.6 | 61.0 | 51.5 | 67.3 | 59.4 | 18.4 | 33.3 | 19.0 |
| Gave me fluids to drink | 52.9 | 44.0 | 50.3 | 12.3 | 6.3 | 9.3 | 81.6 | 41.7 | 80.2 |
| Gave me food to eat | 23.6 | 9.7 | 19.5 | 6.4 | 2.3 | 4.7 | 90.0 | 50.0 | 88.6 |
| Helped care for the baby | NA | NA | NA | NA | NA | NA | 64.4 | 41.7 | 63.6 |
| Helped me change position | 6.7 | 17.2 | 9.8 | 5.9 | 19.0 | 12.5 | 6.0 | 0.0 | 5.8 |
| Helped me walk around | 23.9 | 30.6 | 25.8 | 5.4 | 6.8 | 6.1 | 6.7 | 8.3 | 6.7 |
| Helped the staff | 12.5 | 20.2 | 14.8 | 37.3 | 33.2 | 35.2 | 1.8 | 8.3 | 2.0 |
| Other (help bathing, etc.) | 1.5 | 1.5 | 1.5 | 0.5 | 1.5 | 1.0 | 8.5 | 8.3 | 8.5 |
| Rubbed my back | 7.0 | 14.2 | 9.1 | 28.4 | 38.1 | 14.2 | 1.2 | 8.3 | 1.5 |
| Stayed by my side for majority of time | 33.3 | 67.9 | 43.4 | 38.2 | 59.0 | 48.7 | 35.4 | 50.0 | 35.9 |
| Supported breastfeeding | NA | NA | NA | NA | NA | NA | 21.2 | 16.7 | 21.0 |

Abbreviations: *DBC=Desired birth companion; ^OBC=On-call birth companion; NA: Not applicable

Source: exit interviews, December 2018

Note: Additional elements of support reported by less than 10% of women who had a companion: helped ensure privacy; helped me reduce my pain (nonmedical); nothing; other (bathing, etc.); talked with me about family planning.

Focus group and qualitative interview data from AMDD's implementation research indicated similar findings as women's exit interviews: birth companions comforted women, provided encouragement, reduced their worries and gave them hope, gave them massages, held their hand, and alerted providers when women needed help. The research also found that DBCs provided some support before the woman arrived at the facility for delivery, as well as postpartum, whereas OBCs only provided support while the woman was at the facility. OBCs performed some tasks within the facility that desired companions did not do, such as promoting breastfeeding and family planning.(Table 5)

Table 5: Type of support provided by birth companions to women and providers

| Support to women | | | Support to providers |
|---|---|---|---|
| Emotional | Informational | Practical/instrumental | |
| <ul style="list-style-type: none"> • Comfort/support • Encouragement (“sweet words”; will deliver safe by the will of God) • Reduce worries and give hope • Talk to women • Stay with women all the time • Help women feel “free” • Becoming a friend* | <ul style="list-style-type: none"> • Give advice • Remind women about hygiene • Translation • Educate women on breastfeeding, family planning, how to care for newborn* | <ul style="list-style-type: none"> • Massages • Help women exercise • Hold hand • Help women into bed • Support to urinate/vomit • Hold legs/shoulders during delivery • Support women to walk after delivery • Accompany to antenatal care^ • Encourage good diet • Help pack/carry things from home^ • Secure transport^ • Bring tea and food • Clean women/help them get dressed after birth • Wash clothes • Carry the baby or belongings, and help women to postnatal ward after delivery • Help contact family • Carry things home once discharged^ • Cook for women^ | <ul style="list-style-type: none"> • Alert providers when women need help/are ready to push • Keep women calm • Prepare delivery bed, clean bed after delivery • Help bring water/support providers to clean women • Reduce provider workload/give them time to do other things • Explain/reinforce provider instructions to women • Relay information to health providers (e.g., previous fistula) • Act as a link between providers and relatives • Welcome women to ward, collect antenatal care cards, show them beds* • Help/remind nurses to take medical history and complete register* • Do light cleaning tasks in labor ward* • Hold trays and bring supplies to providers, sometimes fetching from other wards or store* • Tell DBCs not to give local herbs or tell women to push too soon* • Provide company/become a friend to providers* |

Abbreviations: DBC=Desired birth companion; OBC=On-call birth companion

Source: AMDD implementation research

*OBC only

^DBC only

Providers’ Perspectives on Birth Companionship

Quantitative surveys showed that providers at intervention sites were significantly more likely than providers at comparison sites to report supporting the use of birth companions. All providers at intervention sites (N=83; 100%) reported allowing companions during labor (vs. 15% of providers at comparison sites) and 87% of providers at intervention sites reported allowing companions at the time of birth and postpartum (vs. 4% at the time of birth and 29% postpartum at comparison sites). Providers at intervention sites who reported not allowing companions at the time of birth (N=11) cited privacy concerns (63%), and that they considered companionship distracting to the woman (36%) (data not shown). Providers at intervention sites who reported not allowing companions in the postpartum period (N=11) reported the room was too small (73%) and they wanted to keep the room clean/reduce risk for infection (46%)(data not shown). (providers survey; Table 6)

Table 6: Providers’ reports on attitudes toward birth companionship by site status

| Attitude | Intervention sites | Comparison sites | Between-site comparison p-value |
|--|--------------------|------------------|---------------------------------|
| | N=83 | N=85 | |
| | % | % | |
| Reports allowing a companion in <u>labor</u> (% yes) | 100.0 | 15.3 | *<0.001 |
| Reports allowing a companion at the <u>time of birth</u> (% yes) | 86.8 | 3.5 | *<0.001 |
| Reports allowing a companion in the <u>postpartum period</u> (% yes) | 86.8 | 29.4 | *<0.001 |

*An unpaired Student's t test was used to identify differences in key variables by intervention and comparison sites; a value of $p < 0.05$ was considered statistically significant.

Source: providers survey, December 2018

Providers at intervention sites who reported allowing companionship during labor or at the time of delivery said they did so because companions help the provider with their workload (65% and 58%, respectively), tell the provider if there is a change in the woman's status or a problem (64% and 42%, respectively), provide emotional support (54% and 54%, respectively), and help a woman feel more comfortable (52% and 47%, respectively), among other responses. In the postpartum period, providers in intervention sites reported allowing companions because they get the woman what she needs (74%), tell the provider if the woman's condition changes/there is a problem (68%), and help care for the baby (68%). Providers who reported allowing companionship reported companions were "very helpful" (83%–92%) and improved their ability to give good-quality care (86%–93%). (providers survey; Table 7)

Table 7: Providers' perceptions of birth companionship at intervention sites among providers who allowed companionship

| Opinion | During labor N=83 % | At time of birth N=83 % | Postpartum N=83 % |
|--|---------------------------|-------------------------------|-------------------------|
| Why do you allow a woman to have a companion? | | | |
| <i>Helps provider with workload</i> | 65.1 | 58.3 | 27.8 |
| <i>Tells provider if change or problem (woman)</i> | 63.9 | 41.7 | 68.1 |
| <i>Gets woman what she needs</i> | 55.4 | 40.3 | 73.6 |
| <i>Gives woman emotional support</i> | 54.2 | 54.2 | 29.2 |
| <i>Helps woman feels more comfortable</i> | 51.8 | 47.2 | 26.4 |
| <i>Gives woman advice</i> | 28.9 | 34.7 | 22.2 |
| <i>Allows provider to be with other women</i> | 25.3 | 18.1 | 20.8 |
| <i>Facility policy allows it</i> | 18.1 | 27.8 | 9.7 |
| <i>Government policy allows it</i> | 1.2 | 0.0 | 0.0 |
| <i>Other</i> | 3.6 | 2.8 | 2.7 |
| <i>Helps care for the baby</i> | NA | NA | 68.1 |
| <i>Helps with breastfeeding</i> | NA | NA | 26.4 |
| <i>Tells provider if baby change/problem</i> | NA | NA | 55.6 |
| Would you say that allowing companions has been satisfying or dissatisfying for you as a provider? | | | |
| <i>Very satisfying</i> | 92.8 | 87.5 | 88.9 |
| <i>A little satisfying</i> | 7.2 | 8.3 | 8.3 |
| <i>Neither satisfying nor dissatisfying</i> | 0.0 | 4.2 | 2.8 |
| <i>A little dissatisfying</i> | 0.0 | 0.0 | 0.0 |
| <i>Very dissatisfying</i> | 0.0 | 0.0 | 0.0 |
| Would you say that allowing companions has been helpful or unhelpful for you as a provider? | | | |
| <i>Very helpful</i> | 91.6 | 83.3 | 90.3 |
| <i>A little helpful</i> | 8.4 | 9.7 | 6.9 |
| <i>Neither helpful nor unhelpful</i> | 3.6 | 6.9 | 2.8 |
| <i>A little unhelpful</i> | 1.2 | 0.0 | 0.0 |
| <i>Very unhelpful</i> | 0.0 | 0.0 | 0.0 |
| Would you say that allowing companions has made it harder, has not changed your ability or has improved your ability to give good quality care? | | | |
| <i>Improved ability to give good quality care</i> | 92.8 | 86.1 | 88.9 |
| <i>Has not changed ability to give good quality care</i> | 7.2 | 13.9 | 11.1 |
| Would you say that allowing companions has not met your expectations, met your expectations, or exceeded your expectations? | | | |
| <i>Exceeded expectations</i> | 25.3 | 20.8 | 16.7 |
| <i>Met expectations</i> | 71.1 | 76.4 | 80.6 |
| <i>Did not meet expectations</i> | 3.6 | 2.8 | 2.8 |

Source: providers survey, December 2018

Focus group discussions and key informant interviews with providers also showed consensus across all stakeholder groups that birth companions made providers' work easier, and that providers valued this support (AMDD). The principal reason for this was that companions stayed by women's sides and called providers when they were needed. Furthermore, all the various types of support that companions provided to women and providers are tasks that would otherwise fall on the providers; having someone else in the facility to help them therefore reduced their workloads. Providers also described ways in which they felt that birth companions made providers' work easier: by helping women better understand providers' instructions;

helping to reassure and calm women; and helping women with movement (e.g., changing positions, going to the bathroom). Occasionally, companions interpreted between providers and women who were not able to speak Kiswahili fluently. For the most part, companions provided the types of support expected of them. But, in a few occasions, providers reported that companions did tasks that were outside companions' scope of work, as defined by the Code of Good Practice(33), such as light cleaning around labor and delivery, but that the companions felt were necessary to make women more comfortable (e.g., if the woman vomited). (Table 5)

Health workers also appreciated when companions provided information that was relevant to the woman's clinical management, such as whether she took traditional medicines or had had a cesarean section or fistula in a previous delivery. Some providers also valued companions for more indirect roles; for example, providers reported that having companions present meant they would be less likely to be blamed for poor outcomes or accused of mistreating women, because companions could attest to what happened and could explain how hard providers tried to help women and their babies. In addition, 1 provider and 2 OBCs described how providers appreciated the company that OBCs gave them, especially during night shifts. (AMDD)

Women's Opinions on Birth Companionship

The majority of women interviewed at intervention sites in December 2018 were very satisfied with having a companion during labor (97%), at the time of delivery (96%), and postpartum (99%). Most women at the intervention sites also reported that the presence of a companion improved their labor, delivery and postpartum experience (82%–97%).(exit interviews; Table 8). Focus group discussions and interviews also showed that women were very happy to have had a birth companion. (AMDD)

Table 8: Women's satisfaction with and perceptions of birth companionship among women with companions at intervention sites

| Opinion | During labor N=461 % | At time of birth N=409 % | Postpartum N=343 % |
|---|-------------------------------------|---|-----------------------------------|
| Level of satisfaction with having a companion | | | |
| <i>Very satisfied</i> | 97.2 | 96.3 | 99.1 |
| <i>A little satisfied</i> | 2.2 | 3.7 | 0.3 |
| <i>Neither satisfied nor dissatisfied</i> | 0.4 | 0.0 | 0.3 |
| <i>A little dissatisfied</i> | 0.2 | 0.0 | 0.3 |
| <i>Very dissatisfied</i> | 0.0 | 0.0 | 0.0 |
| Influence of having a labor companion on experience | | | |
| <i>Made experience better</i> | 82.4 | 86.1 | 96.8 |
| <i>Did not change experience</i> | 17.4 | 13.9 | 3.2 |
| <i>Don't know</i> | 0.2 | 0.0 | 0.0 |
| Influence of having a companion on future use of the facility | | | |
| <i>Increased chance of returning</i> | 92.4 | 99.3 | 95.3 |
| <i>Did not change chance of returning</i> | 6.9 | 8.1 | 4.7 |
| <i>Don't know</i> | 0.7 | 0.7 | 0.0 |
| Influence of having a companion on recommending the facility to family and friends | | | |
| <i>Increased chance of recommending facility</i> | 92.2 | 92.4 | 94.5 |
| <i>Did not change chance of recommending facility</i> | 7.8 | 7.6 | 5.3 |
| <i>Decrease chance of recommending facility</i> | 0.0 | 0.0 | 0.3 |

Source: exit interviews, December 2018

"My birth companion comforted me, massaged me at the back and told me to be patient, God is with you, you will get better soon, she was telling me sweet words and then she was singing gospel songs for me so I gave birth without feeling any pain" —Focus group discussion: Women with DBCs (AMDD)

"To be honest, having a birth companion makes you feel really good, we really thank you for bringing us the birth companion because the previous births you were staying there in the labor room alone, the minute you feel like you are pushing is when you call the nurse to help you now, right now at

least you just heard they have called for, if she has been called for emergency the birth companion is working to call the nurse, so you really feel comfortable when you are with a birth companion.” –Focus group discussion: Women with DBCs (AMDD)

Women’s Overall Experience of Care

When comparing intervention with comparison sites, women reported that providers at intervention sites were significantly more likely to respond to women who called for help compared to providers in comparison sites ($p=0.003$), to interact in a friendly way ($p<0.001$), to greet them respectfully ($p<0.001$), to try to make them more comfortable ($p=0.003$), and to encourage them to have a companion ($p<0.001$). However, women at intervention sites were significantly less likely to feel comfortable asking questions than women at comparison sites ($p<0.001$). Overall, women who delivered at intervention sites were less likely to report experiencing emotional abuse (defined as being spoken to in an angry or condescending way that made the woman feel badly about herself, degraded, embarrassed, or sad; $p=0.023$) and physical abuse (defined as being hit, slapped, pushed, pinched, kicked or receiving any other type of physical force; $p=0.006$) from providers. (exit interviews; Table 9)

Table 9. Women’s experience of elements of respectful maternity care by site status

| Experience | Intervention Sites N=603 % | Comparison Sites N=486 % | Between-site comparison p-value* |
|--|-------------------------------|--------------------------------|-------------------------------------|
| Did the provider [...]? | | | |
| <i>Attend if woman calls for help</i> | 98.7 | 96.1 | 0.003 |
| <i>Interact in a friendly way</i> | 97.7 | 91.2 | <0.001 |
| <i>Greet respectfully</i> | 97.0 | 88.3 | <0.001 |
| <i>Pay close attention throughout delivery</i> | 87.6 | 89.5 | 0.160 |
| <i>Try to make more comfortable</i> | 85.6 | 79.2 | 0.003 |
| <i>Introduce themselves</i> | 41.8 | 43.4 | 0.295 |
| <i>Encourage you to have a companion</i> | 46.6 | 11.9 | <0.001 |
| Did the woman [...]? | | | |
| <i>Feel comfortable to ask questions</i> | 65.8 | 90.7 | <0.001 |
| Experience abusive behavior from provider | | | |
| <i>Emotional abuse</i> | 1.3 | 3.1 | 0.023 |
| <i>Physical abuse</i> | 0.0 | 1.0 | 0.006 |

* An unpaired Student’s t test was used to identify differences in key variables by intervention and comparison sites; a value of $p < 0.05$ was considered statistically significant.

Source: exit interviews, December 2018

During the focus group discussions, women described their experiences receiving more respectful care, which they attributed to the introduction of birth companions. The most often discussed and appreciated change was the improved sense of privacy and confidentiality that came with the partitions constructed in the delivery rooms. Women deeply appreciated the privacy because they were not exposed to anyone else walking into the ward, and in particular, not seeing their private parts, during labor and delivery. (AMDD)

“... it’s different from previous time, right now you just get in and she treats you so nice, when you get there you just give birth so nice, you have your room and your bed, there no such thing as this one was looking at me or what, it’s you and your nurse, that’s good, it’s not like in the previous time, there was a bed here and another one there” –Focus group discussion: Women with OBCs (AMDD)

As was found in the exit interviews, women in focus group discussions also reported a faster response time from the health providers, since their companion was able to alert the providers immediately when a woman’s condition changed. (Table 9) This was discussed as a measure to ensure women received the timely care that they needed, as well as to provide peace of mind to the women, who knew that someone was looking out for them. Having someone to go get the nurse when a woman was ready to push was mentioned by all informant types as being one of the main reasons they appreciated the intervention. (AMDD)

Women also talked about being treated well and spoken to kindly by the nurses in the presence of their birth companions. Women said the nurses were “kind” and “good” and “received me well.” One woman in a focus group discussion suggested that her labor pain actually decreased because of the sweet words that the nurse said to her. Women spoke of this change in 2 ways: some described an overall shift in the facility culture which led to happier nurses, whereas others guessed that it had more to do with fear that the birth companion would ultimately report the nurse. (AMDD)

Lastly, when birth companions talked about their role and how it may have affected providers’ treatment of the woman they were supporting, they most often mentioned being outsiders and therefore serving as “witnesses” to providers’ behavior and being advocates for women’s rights and wishes. As one DBC said, her presence simply “helps the nurse remember her responsibilities when she sees you.” She further explained that she felt the nurses worked harder because of her simply being there (AMDD):

“...because at that time when they see you that you are close they try to work hard, because they know that this person is with a companion if I do wrong she is investigating, I may find myself given a bad or good report, so you find a nurse is careful at that moment because when she sees me she is trying her best at her ability.” –DBC

Women in intervention sites were significantly more likely to report being “very satisfied” with the care they received ($p < 0.001$), and that the staff were “very kind” to them ($p < 0.001$) and “very encouraging” ($p < 0.001$). Women were asked what they were most satisfied with and women at intervention sites were statistically more likely to report that staff were kind in the way they were treated ($p < 0.001$), used encouraging words ($p < 0.001$), and were attentive to their needs ($p < 0.001$). (exit interviews; Table 10)

Table 10: Women’s satisfaction with care by site status

| Satisfaction with care | Intervention sites N=603 % | Comparison sites N=486 % | Between-site comparison p-value* |
|--|----------------------------------|--------------------------------|-------------------------------------|
| How would you rate your overall level of satisfaction with the care you received? | | | |
| <i>Very satisfied with care</i> | 93.4 | 81.3 | <0.001 |
| <i>A little satisfied/neither satisfied nor dissatisfied/a little dissatisfied/very dissatisfied</i> | 6.6 | 18.7 | |
| How would you rate the staff’s kindness? | | | |
| <i>Very kind</i> | 94.0 | 80.0 | <0.001 |
| <i>A little kind/neither kind nor unkind/a little unkind/very unkind</i> | 6.0 | 20.0 | |
| How would you rate the staff’s encouragement? | | | |
| <i>Very encouraging</i> | 94.4 | 81.9 | <0.001 |
| <i>A little encouraging/neither encouraging nor discouraging/a little discouraging/very discouraging</i> | 5.6 | 18.1 | |
| What about your care were you satisfied with? | | | |
| <i>Staff was kind in the way they treated me</i> | 83.6 | 54.9 | <0.001 |
| <i>Staff used encouraging words</i> | 59.4 | 40.3 | <0.001 |
| <i>Staff came when I called</i> | 47.4 | 44.4 | 0.163 |
| <i>Staff was attentive to my needs*</i> | 26.4 | 16.7 | <0.001 |
| <i>Staff stayed with me</i> | 27.2 | 15.2 | 0.001 |
| What about your care were you dissatisfied with? | | | |
| <i>Nothing</i> | 77.9 | 52.7 | <0.001 |
| <i>Staff did not allow me to have a birth companion</i> | 0.2 | 7.0 | <0.001 |
| Would you return to the facility for care in the future? (% yes) | 99.0 | 97.3 | 0.029 |
| Would you recommend this facility to friends and family? (% yes) | 99.7 | 96.1 | <0.001 |

* An unpaired Student’s t test was used to identify differences in key variables by intervention and comparison sites; a value of $p < 0.05$ was considered statistically significant.

Almost all women across intervention and comparison sites said they would return to the facility for care in the future (99% and 97%, respectively). Women at intervention sites were significantly more likely to report that they would recommend the facility to friends and family compared to women at comparison sites(<0.001).(exit interviews; Table 10)

Outcome Indicators

Between October 2017 and December 2018, a total of 16,789 women gave birth in the 9intervention facilities and 13,424 women gave birth in the comparison facilities. Compared to the 15 months prior to the implementation of the companionship project (July 2016 to September 2017), the number of deliveries increased by 2% in intervention sites and decreased by6% in comparison sites.(Table 11)

Table 11: Birth outcomes before and during pilot implementation by site status

| Indicator | Intervention Sites (N=9) | | | | Comparison Sites (N=6) | | | |
|---|--------------------------|---------------------------|----------|---|------------------------|---------------------------|----------|---|
| | Before Pilot* | During Pilot ^A | % Change | Significance level of % change [‡] | Before Pilot* | During Pilot ^A | % Change | Significance level of % change [‡] |
| Deliveries in health facilities | 16,410 | 16,789 | 2.3% | NA | 14,291 | 13,424 | -6.1% | NA |
| Live births in health facilities | 16,189 | 16,618 | 2.6% | NA | 14,003 | 13,196 | -5.8% | NA |
| Obstetric complications treated | 3,199 | 3,369 | 5.3% | NA | 3,873 | 3,598 | -7.1% | NA |
| Direct obstetric maternal deaths | 51 | 41 | -19.6% | NA | 74 | 64 | -13.5% | NA |
| Intrapartum stillbirths | 287 | 226 | -21.3% | NA | 294 | 231 | -21.4% | NA |
| Pre-discharge neonatal deaths | 239 | 243 | 1.7% | NA | 367 | 323 | -12.0% | NA |
| Direct obstetric case fatality rate (including deaths due to first trimester complications) | 1.6 | 1.2 | -23.7% | 0.198 | 1.9 | 1.8 | -6.9% | 0.675 |
| Institutional MMR (per 100,000 live births) | 315.0 | 246.7 | -21.7% | 0.244 | 528.5 | 485.0 | -8.2% | 0.615 |
| Intrapartum stillbirth rate per 1,000 births | 17.2 | 13.1 | -23.6% | 0.003 | 19.7 | 16.6 | -15.8% | 0.046 |
| Pre-discharge neonatal death rate per 1,000 live births | 14.8 | 14.6 | -1.0% | 0.916 | 26.2 | 24.5 | -6.6% | 0.370 |

Abbreviations: MMR=Maternal Mortality Ratio; NA=Not applicable

Source: Pregnancy Outcomes Monitoring Surveys

*July 2016–September 2017

^A October 2017–December 2018

[‡]Significance of the difference between the two periods was tested using two proportion z test.

Maternal and neonatal mortality declined in both intervention and comparison sites. While declines were generally larger in the intervention sites than in the comparison sites, changes from pre-intervention to intervention periods were not statistically significant in either group of health facilities. (Table 11) However, there was a significant decline in the intrapartum stillbirth rate in both intervention and comparison sites (from 17.2 to 13.2 per 1,000 and from 20.1 to 16.9 per 1,000, respectively).

Discussion

The birth companionship pilot in Kigoma shows that introducing and implementing a birth companionship program in the government health system in a rural region of Tanzania is feasible. Despite initial hesitation and concern, birth companionship became a reality for more than 80% of women delivering at the 9intervention facilities.

Concerns around privacy, crowding in the maternity ward and introduction of infection, which were identified in the formative research and cited in other studies(27–29), were overcome in this pilot through: involving health providers, community members and government officials at the design phase and in developing the Code of Good Practice(33); through close implementation support to facilities; and with minor maternity ward renovations which provided auditory and visual privacy to women and their companions. Very few health providers, government officials or women in intervention sites maintained these concerns by the end of the project. There were no identified problems with infections as a result of having birth companions in

intervention sites. Further, the direct obstetric case fatality rate and institutional maternal mortality rate appeared to decrease but were not significantly different during the intervention period compared to the pre-intervention period.

Uptake of this new intervention over 15 months was quite rapid in large part because of the use of OBCs who were offered to most women arriving at intervention facilities. The use of DBCs took longer because of the orientation process required to receive a DBC badge and because some women living in rural areas did not receive antenatal care at one of the intervention facilities and were unaware of the process for bringing a companion from home. However, overtime, as more women became aware of the birth companionship initiative through various communication strategies, and through minor adjustments to the DBC orientation process, the use of DBCs increased.

As in other studies, women were highly satisfied with having companions and most women reported that the presence of a companion improved their birth experience(27, 28, 30, 36).What was unique in this pilot was the use and documentation of how 2 types of companions worked in rural government facilities. Women had positive encounters with both OBCs and DBCs but the types of support that they provided, while similar, were not identical. Both types of companions comforted women with kind words, singing or prayer, stayed by the woman's side for the majority of time, and provided other types of emotional and practical support during labor (like helping women walk around and giving them fluids to drink) and at the time of birth (such as giving advice and instructions). However, because OBCs were more experienced, had more training (including on nonmedical comfort measures), were more familiar with the health facility setting,and had established relationships with health providers at the facilities, their roles differed: OBCs were more likely to provide continuous support, give advice/instructions, and communicate with health providers. DBCs, on the other hand, were able to provide support to women at home during the antenatal period and were more present than OBCs during the postpartum period, when they were able to help women with their newborns, give women food to eat and fluids to drink, and clean clothes and linens. OBCs were not present as much during the postpartum period because after the delivery, especially at high-volume facilities, they would often be called to accompany other women.

Health providers in intervention sites were very positive about the addition of birth companionship. From their perspective, birth companions had the dual role of providing emotional support to women and relieving certain aspects of health providers' jobs, some of which birth companions were not meant to be doing but felt were necessary or urgent to make women more comfortable (e.g., fetching water and doing light cleaning).In a more ideal situation, nurse-midwives would be able to provide a more supportive role during childbirth. But, with current staffing levels and other health system constraints, nurse-midwives are rarely able to spend time providing continuous emotional support to women in their facilities. Further, with increasing caseloads and stagnant staffing levels, nurses and others in the maternity ward are stretched and unable to assist and closely monitor all women at the same time. Therefore, health providers were happy to have birth companions because they relieved providers of some aspects of their heavy workloads and ultimately, they felt that the introduction of birth companions improved their ability to provide good-quality care. However, despite birth companions' critical role providing support to women during childbirth, birth companionship should not be thought of as a standalone solution to structural problems in the health system, particularly around human resource shortages.

The environment and culture of facilities with birth companionship appear to have changed in positive ways. Women reported that health providers were more responsive, treated them more respectfully, tried to make them more comfortable and were kinder than in comparison sites. Whether this was due to positive changes that were introduced and promoted by the birth companions or because health providers perceived birth companions as witnesses to their behavior and actions, the change is positive. This is a very important finding and provides the field with an example of an intervention that contributes to humanizing maternity care, ensuring women are treated with dignity, and improving quality of care. Another important finding is that women greatly appreciated the partitions that were constructed in the labor and delivery rooms because they improved their sense of privacy and confidentiality. While not directly related to the birth companionship intervention, this is important to note, and these types of partitions are now being included in Tanzanian guidelines for respectful care and maternity ward design. One surprising finding was that women who had a companion in either intervention or comparison sites felt less comfortable asking questions than women without companions. This is an issue that should be explored in future studies.

Over the course of implementation, the number of women delivering at intervention facilities increased slightly. Having more women deliver at the intervention sites was one of the pilot's objectives. The fact that most women reported being satisfied with their facility delivery, would recommend the facility to other women, and would return for future deliveries, indicates that changes have occurred that may lead to sustained increases in utilization (absent other changes around facility functioning and quality of care).

Maternal and newborn mortality declined in both intervention and comparison sites, though these declines were not significantly different from the pre-pilot mortality rates in either the intervention or the comparison sites. Declines in case fatality rate and institutional maternal mortality ratio were larger in the intervention sites than in the comparison sites though comparisons between the 2 groups of sites were not subject to statistical testing. There was a statistically significant decline in intrapartum stillbirth rates in both intervention and comparison sites. While other clinical quality improvement initiatives were in progress at the same time and comparison facilities also saw declines, it is possible that the increased attention that women received during childbirth from birth companions, who were able to quickly alert health providers when they were needed, could have contributed to these meaningful improvements. However, relying on companions to alert health providers in this way could become problematic if companions are blamed for missing danger signs or are blamed for adverse events; continuous support provided by companions is not the same as close monitoring by nurse-midwives and clinicians—it should be supplementary.

One limitation of our study relates to selection of intervention and comparison sites. Intervention sites were not randomly assigned but were selected based on the size and layout of maternity wards. In addition, the intervention sites included only 1 hospital whereas the comparison sites included

2, which suggests the possibility of some key differences between the groups of sites before the introduction of birth companionship. Nonetheless, both intervention and comparison sites received the same EmONC quality improvement interventions provided by the larger *Program to Reduce Maternal Deaths in Tanzania*.

Important implementation lessons were learned in this pilot that should be applied to future birth companionship initiatives in Tanzania and elsewhere, including the value of: involving all stakeholders in the design and implementation phases; creating a set of guidelines which defined the roles and limitations of companions; incorporating implementation research into the project design; and using multiple communication strategies to ensure health providers and communities understand the intervention and its benefits. Challenges encountered during implementation of this pilot were identified and managed by a dedicated team of implementers and researchers who had strong relationships in the region and this is likely to have contributed to the pilot's overall success. Future birth companionship projects may consider: focusing more on DBCs and their roles during pregnancy and the postpartum period, adding more emphasis on nonmedical comfort measures, and ensuring privacy without major facility renovations. Going forward, it will also be important to learn how birth companionship can be implemented in settings without a well-funded and dedicated implementation team and how it can be integrated into routine government health services. A follow-up project to the Kigoma pilot with a focus on sustainability is forthcoming.

Conclusion

The introduction of birth companionship in participating facilities was feasible and well accepted by health providers, government officials and most importantly, women who delivered at those facilities. Birth companions provided women with continuous emotional, informational and practical support during childbirth and that appears to have contributed to women having better birth experiences in health facilities. Birth companionship also seemed to improve the environment of the maternity wards overall. Based on findings from this pilot, birth companionship would be a beneficial option for all women giving birth in health facilities in Tanzania.

Abbreviations

AMDD Averting Maternal Death and Disability Program

CDC/DRH U.S. Centers for Disease Control and Prevention, Division of Reproductive Health

DBC Desired birth companion

EmONC Emergency obstetric and newborn care

MoHCDGEC Tanzania Ministry of Health, Community Development, Gender, Elderly and Children

OBC On-call birth companion

POMS Pregnancy Outcomes Monitoring Surveys

Declarations

Ethics approval and consent to participate:

The study received ethical approval from the National Ethical Review Committee of the National Institute for Medical Research in Tanzania (Thamini Uhai: Ref. NIMR/HQ/R.8a/Vol.IX/2456; Columbia University: Ref. NIMR/HQ/R.8a/Vol.IX/2744; CDC: Ref. NIMR/HQ/R.8c/Vol.I/265). Permission and approval to implement the project was obtained from the Ministry of Health, Community Development, Gender, Elderly and Children, the Prime Minister's Office and Local Government officials, district officials and participating health facilities' in-charges and department heads. Written consent was received from all people interviewed individually. Questionnaires were number-coded thereby keeping the identity of participants anonymous. Verbal consent was received from all focus group discussion participants, as per ethical approval, and confidentiality of participants was maintained at all times; no names of participants were collected. Pregnancy outcomes monitoring data were retrieved retrospectively from routine facility registers without individual patient identifiers. There were no minors involved in this study.

Consent for publication:

Not applicable.

Availability of data and materials:

The data generated and analyzed for this study are available from Thamini Uhai, CDC and AMDD on reasonable request.

Competing interests:

The authors declare that they have no competing interests.

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Blue Lantern Foundation, Bloomberg Philanthropies and Fondation H&B Agerup provided funding for implementation of the birth companionship pilot and for the quantitative component of the evaluation. The Bill and Melinda Gates Foundation provided funding for the formative and implementation research. This study was conducted as part of the Program to Reduce Maternal Deaths in Tanzania which was implemented from 2006-2019. The funders had no role in the study.

Authors' contributions:

PC, NM, SD, AMp, AMb, MM, SL, MD, SMb and SMc made substantial contributions to the conception and design of the work. NM, SD, AMp, AMb, MM, SL, MD, SMb, SMc and FS analyzed and/or interpreted the data. NM, SD, AMp, AMb, MM, SL, MD, SMb, SMc, KS and FS drafted and/or substantively revised the manuscript. All authors approved the submitted version.

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Figures

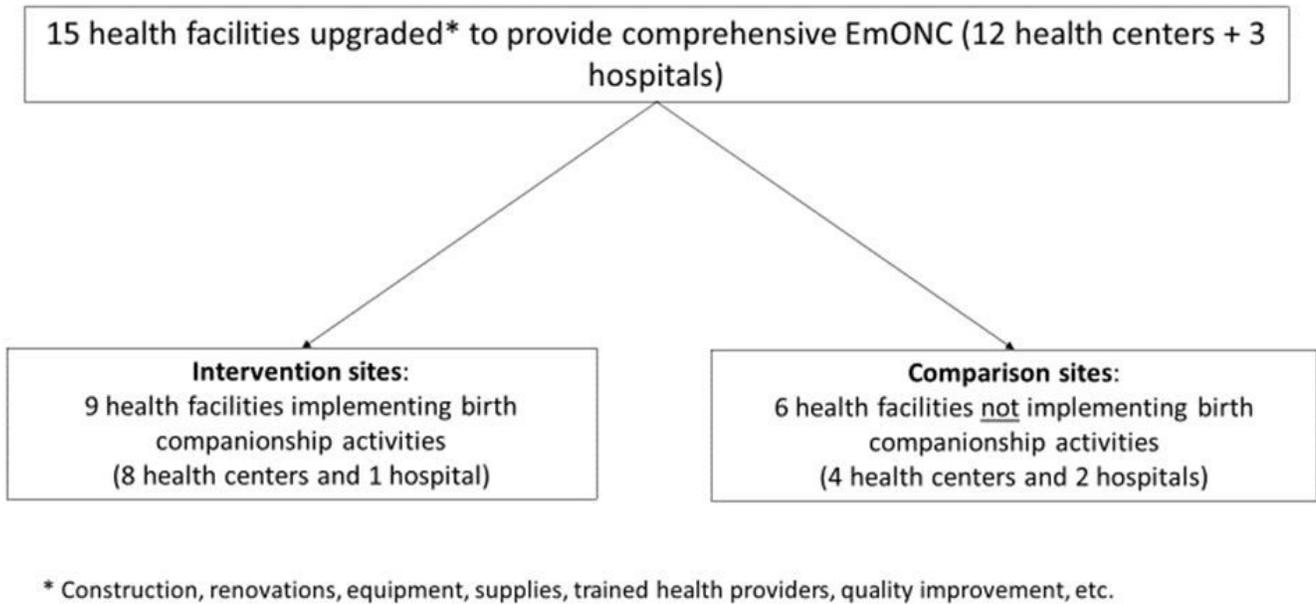


Figure 1

Pilot intervention and comparison sites

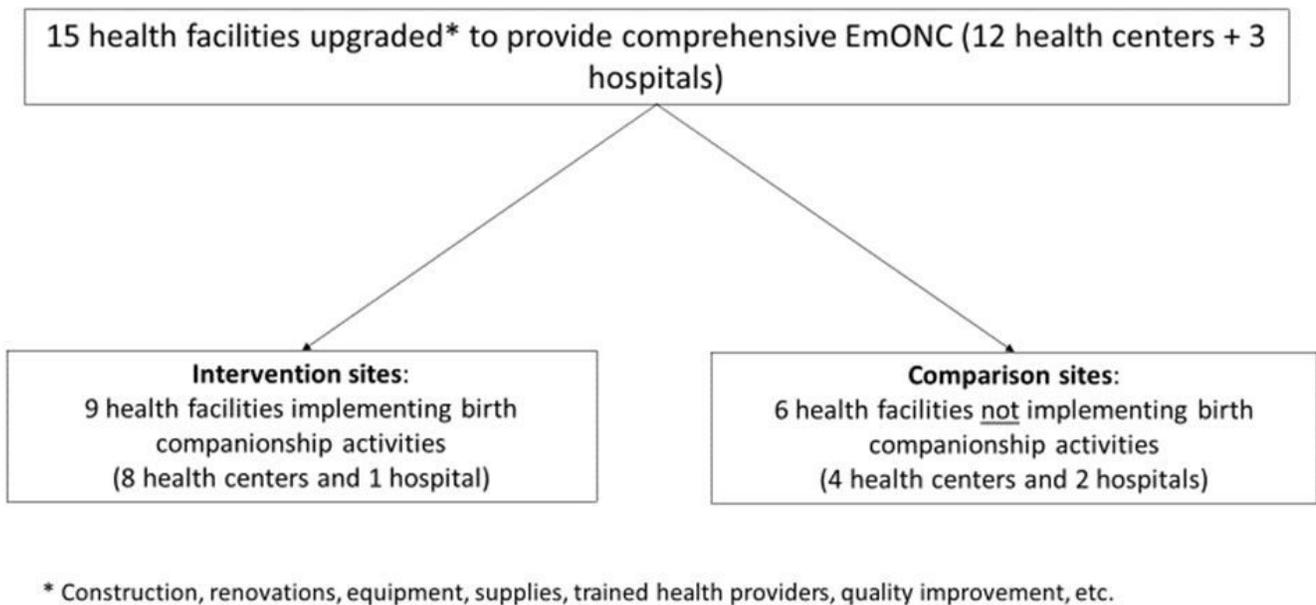


Figure 1

Pilot intervention and comparison sites

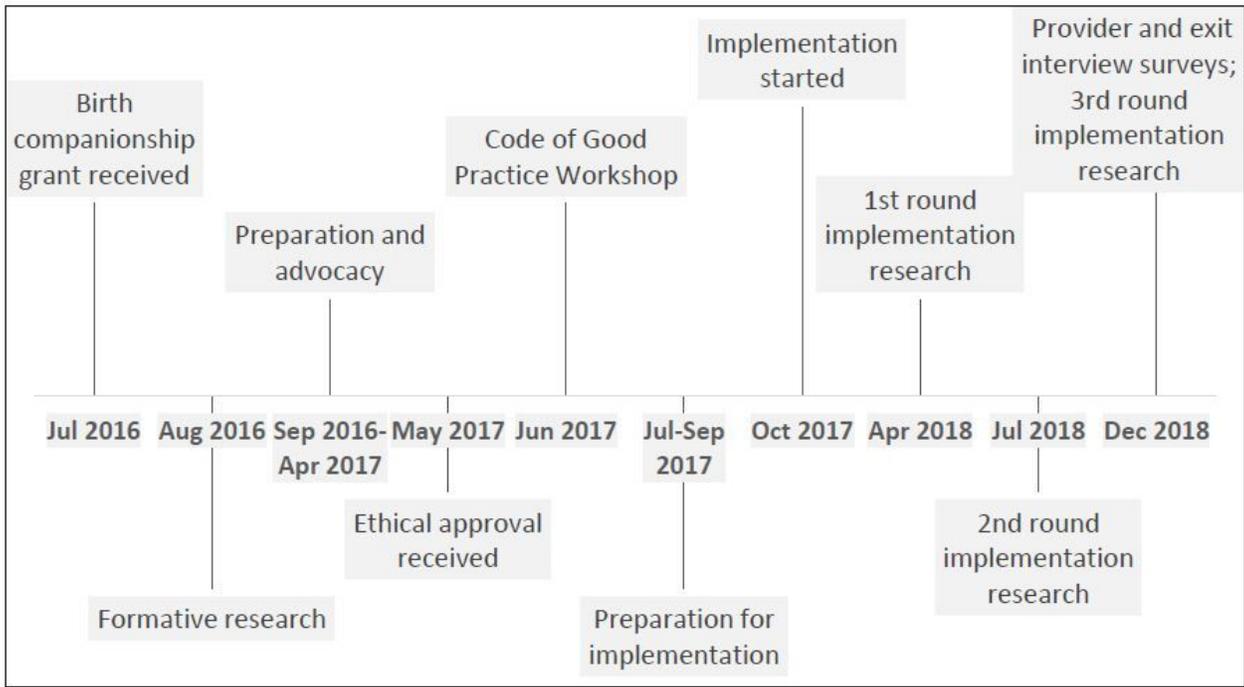


Figure 2

Timeline of the birth companionship pilot, July 2016–December 2018

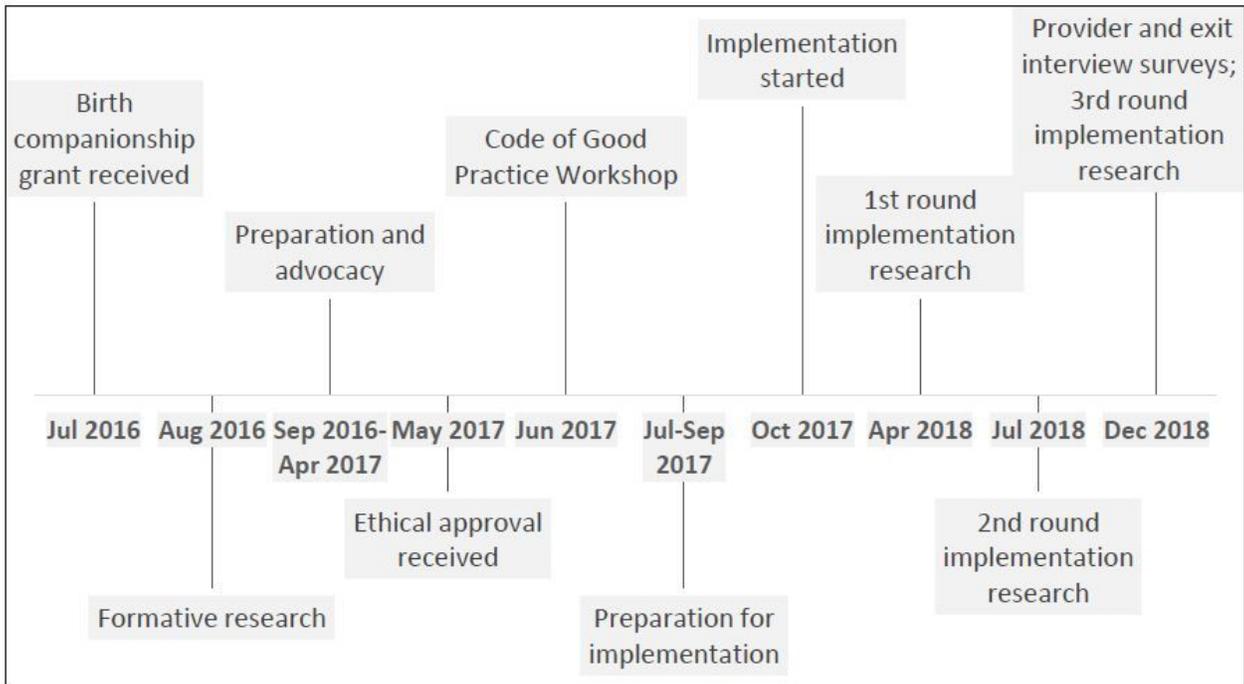


Figure 2

Timeline of the birth companionship pilot, July 2016–December 2018



* 23 women were excluded because of being younger than 15 or older than 49 years of age or not being attended by an interviewed provider.
 ^ 5 providers were excluded because they did not provide delivery care between Dec. 1-21, 2018.

Figure 3

Interviews with women and their providers at the pilot intervention and comparison sites (Source: exit interviews and providers survey)



* 23 women were excluded because of being younger than 15 or older than 49 years of age or not being attended by an interviewed provider.
 ^ 5 providers were excluded because they did not provide delivery care between Dec. 1-21, 2018.

Figure 3

Interviews with women and their providers at the pilot intervention and comparison sites (Source: exit interviews and providers survey)

Supplementary Files

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