Safe Motherhood Endline Report
Final Results: Ermera & Covalima

Grishma Bista
Cathy Boyle
Floriano Carvalho
Alfredo da Conceicao
Rebecca Elias
August 2017

Acknowledgments

Thanks and acknowledgement must go to the input from the many respondents in the field in both the project sites in Atsabe (Ermera) and Covalima. Thanks Grishma Bista, the Project Manager of the Safe Motherhood Project with CARE International in Timor-Leste who managed the endline study. Special thanks goes to Chakra Thapa (IT Manager, CARE International in Timor-Leste) who skilfully enabled mobile data collection. A big thank-you to Floriano Carvalho and Alfredo da Conceicao who oversaw logistics, data collection teams and 'crunched' the majority of the data. The entire Safe Motherhood Team at CITL who facilitated endline data collection in Safe Motherhood project sites – *obrigada barak*. Thanks also goes to Cathy Boyle (Coordinator Pacific and Timor-Leste) who helped complete this narrative report.

Table of Contents

Executive Summary

The CARE International in Timor-Leste Safe Motherhood Project endline study is to serve as a comparative study against the baseline study (April 2015) of current knowledge, attitudes and practices in the areas of maternal and child health in target communities in Ermera (Atsabe) and Covalima. The endline study consisted of a Knowledge Practice and Coverage (KPC) Survey and was conducted during April to May 2017.

The survey revealed clear improvements in Ermera and Covalima municipalities in terms of accessing and utilising maternal health services, with Ermera municipality reporting greater improvements across all of the indicators covered in the survey despite starting from a poorer baseline.

Improvements to antenatal care (access and quality) improved more than other areas such as safe delivery and contraception that may be more difficult to change due to systemic issues with maternal health service provision and social and gender norms which influence maternal and reproductive health seeking behaviours including contraception. The comparison of survey results revealed 35% more women with children 0-23 months completed the recommended four antenatal care visits during pregnancy. There was a 17% increase in women's knowledge about danger sings during delivery. Overall, the reported quality of antenatal care improved, with the vast majority of women receiving malnutrition screening a, iron supplements from a skilled service provider.

There were some positive trends to delivery practices with an 11% increase of women giving birth with a skilled birth attendant and a 5% decrease of home deliveries. That said, further improvements are needed given more than half of women (61%) reported to give birth with no skilled birth attendant which continues to pose risks to the mother and child during delivery. Home births remain high (88% in Ermera, 60% Covalima) which reflects ongoing difficulties in accessing and utilising health centres.

The survey revealed a 13% improvement to use of modern family planning methods, now at 41% across project sites and up to 66% in Covalima. There was a much stronger improvement to the proportion of women reported knowing at least one modern method of contraception (22% increase) than those who reported using contraception. Injection was by far the most utilised form of modern contraception in the baseline in both Ermera (53%) and Covalima (85%). This further increased by 36% (Ermera) and 2% in Covalima.

The Safe Motherhood Endline Report should be read in conjunction with the *Safe Motherhood Baseline Report* (April 2015), *Healthy Villages Baseline Report* (June –July 2013) and learning form CARE's Safe Motherhood Project including *Using CARE's Community Score Card to Improve Sexual and Reproductive Health in Timor-Leste* (April 2017) and *Safe Motherhood Mid Term Evaluation* (June 2016). The Healthy Villages Baseline study consisted of a KPC Survey, Focus Group Discussions and Key Informant Interviews. The quantitative results of the KPC survey conducted for the Safe Motherhood Project were analysed against the quantitative data collected during the Safe Motherhood Baseline Report.

1. CITL Health Program Overview

Timor-Leste CARE International Timor-Leste (CITL) works to improve the wellbeing and voice of women and girls in rural, disadvantaged areas. This is done through the development of programs and activities that address CITL's long term priorities of sexual, reproductive and maternal health and rights; education; women's economic empowerment; and women's voice.

CITL's Safe Motherhood Project (SMP) focused on sexual, reproductive and maternal health and rights (SRMHR), women's economic empowerment and women's voice. The project began in 2013 under a different form – the Healthy Villages project in Covalima and Liquica municipalities, which placed more of an emphasis on sanitation and hygiene. This changed in April 2014 when the project became the Safe Motherhood Project (using the results of a baseline survey as its supporting data), with an increased focus on safe birth practices, nutrition and family planning.

The SMP was implemented in nine sucos (villages) in Ermera and Covalima municipalities of Timor-Leste, and in 22 aldeias (hamlets) in these sucos. In Ermera the project concentrated in the sub-district of Atsabe, while in Covalima the project focused in sub-districts of Maukatar, Fatululik and Tilomar. Pregnant women and lactating mothers in select communities have been the target group for this project. Secondary target groups, (whom the project will focused on in order to achieve outcomes in the target group) included men in the communities, parents and in-laws of the target group, young people in the communities, community leaders, Community Health Centre (CHC) staff, local NGOs, and the Ministry of Health.

The project was funded by the Australian Department of Foreign Affairs (DFAT) under the Australian NGO Cooperation Program (ANCP).

The overall goal of the project was to decrease maternal mortality and morbidity by focusing on improving sexual reproductive and maternal health (SRMH) behaviours and improving access, utilisation and provision of quality SRMH services.

The two end of project outcomes for the Safe Motherhood Project were:
1. Improved access, utilisation and provision of quality sexual reproductive and maternal health (SRMH) services
2. Personal SRMH behaviours of women and their families in the target areas are improved.

The three intermediate outcomes, contributing to end of project outcomes were identified as:
1. Service providers and government are committed, responsive and have the capacity to provide quality, accessible SRMH services
2. Expanded, inclusive and effective spaces for dialogue and negotiation between communities, service providers and government are established for more accountable services
3. Women, youth and their communities are empowered to access and use SRMH service and improve SRMH behaviour

The project focused on the key health area of maternal health, including family planning, recognising and responding to pregnancy and delivery danger signs, safe birth planning (Birth Preparedness Plan) and nutrition. It also included mutual accountability tools (Community Score Card) and sought to change social norms and transform gender through Social Analysis in Action.

The project worked closely with the Ministry of Health, civil society partners and local leaders to implement its five strategies:

1. Mothers' Caring Groups and Kitchen Gardens
2. Birth Preparedness Plans
3. Family Health Days
4. Mutual Accountability Tool (or Community Score Card process)
5. Social Analysis in Action
6. Training doctors, nurses and midwives

The SMP was implemented through a mix of direct implementation and implementation through a local non-government organisation as well as ongoing partnerships with Ministry of Health and Municipality Health Services, and engagement with other key stakeholders in the sector.

2. Objectives and Composition of the Endline Study

2.1 Objectives of Endline Study

The main objectives of the Knowledge, Attitudes and Practices (KAP) endline study is to serve as a before-and-after comparison from SMP baseline study on knowledge, attitudes and practices in target communities in the area of maternal health.

The endline allows us to reflect on baseline data to see the extent to which the project was able to achieve improvements to a sub set of indicators set out in Safe Motherhood Project log frame. The endline will contribute to an assessment of the validity of Safe Motherhood Project strategies. It enables us to track changes from 2014 in target project sites.

2.2 Outline of Study Methodology

The endline study was a single-method design utilising a quantitative research methodology. A Knowledge Practice and Coverage (KPC) survey with mothers of children between 0-23 months was conducted, which is explained in more detail below.

3. Methods: KPC Survey

For the baseline, a community wide survey was conducted in a representative random sample of aldeias participating in the CITL Healthy Villages and PROMISE Programs across Atsabe, in Ermera Municipality, and Tilomar, Futululic and Maukatar in Covalima Municipality. Data collection was undertaken during the period of January and February 2014. The baseline survey was designed to capture information on the indicators outlined in the CITL Health Program.

The endline replicated the methods used in the baseline to establish comparable results. Replicated methods included the approach to population and sample design, and research tools. An update of the baseline using the same methodology provides data at the municipal level on changes in SRMH practices. The endline has limitations as to the projects' contribution to these changes given randomly selected participants may, or may not have been beneficiaries of the project.

3.1 Population and Sample Design

The sample size for the baseline was determined using Probability Proportional to Size (PPS) systematic sampling of 40 clusters which comprised of one to four aldeias depending on population size. PPS in relation to cluster size ensured that larger aldeias had a greater chance of being selected than smaller ones. When a cluster comprised of more than one aldeia, the aldeia in which to commence the survey was randomly chosen. For the baseline, in each cluster there were six interviews conducted to provide a total sample size of 240 (102 in Covalima and 138 in Atsabe), which gives a minimum confidence interval of 95% and margin error of 5%. Clusters were not stratified by the presence of a health clinic, health post or SISCa in the sample.

The endline replicated the sample design in the aldeias selected to ensure comparability. One aldeia (Taroman in Suco Taroman, Futululic Administrative post, Covalima), was purposefully removed as it was no longer an active SMP site. This ensured consistency in comparison between baseline and endline data of active project sites. The endline sample of aldeias provides good coverage of all aldeias in project (82%, or 36 of 44[1] aldeias). In each cluster, the endline aimed to conduct a minimum of six interviews. Where this was not possible, additional interviews were included within the same administrative post giving a total sample size of 233 (106 in Covalima, and 127 in Atsabe). Increasing the overall sample size from an initial target of 210 (6 interviews, 35 aldeias) increased minimum confidence interval and decreased margin of error compared with the generalizable population in the baseline study.

A similar methodology of respondent selection used in the baseline survey was applied in the endline survey. The baseline and endline survey specifically targeted mothers of children aged 0-23 months. Mothers of children aged 0-23 months have a far more accurate recollection of many of the topics asked in the survey, including substance related to maternal care, delivery and family planning. Asking the questions of this subset of mothers increases the accuracy of the data collected.[2]

In the baseline survey, to get a random sample enumerators spun a bottle in the centre of the aldeia and then counted the number of houses from the centre to the perimeter in the direction the bottle indicated. A random number was then selected to begin the survey. The following house to be surveyed was determined by selecting the household with the closest front door. If no one was at home that fit the criteria at the time of the survey, the team returned later in the day (at least three times) so to limit non-sampling error. If two women in one household fit the description, then the mother with the youngest child was invited to be interviewed. In the case that the woman is not home, would not be home in the next 30 minutes (in which case the interviewer would wait) or a later time in the day could not be fixed to conduct the interview, an additional household was selected.

For the endline survey the teams used 'spinning a bottle (pen) method' or team members walked in different geographic directions to find households with respondents who fit the criteria (women with children 0-23 months). If enumerators could not identify women who fit the criteria, they would move on to another household. Through this random sampling method, 51 % of respondents were directly part of CARE's Mother Caring Groups (as leaders or members), 15% were not direct MCG members/leaders but had been involved in other SMP projects activities (such as family health days) and 34% were not involved in any SMP project activities.

---

[1] Now 43 as a result of one Aldeia no longer active

[2] Monitoring and Evaluation Manual, Medical Teams International Technical Services Group Revised, March 2009 (www.medicalteams.org/docs/…/ME_Manual_April_2009.pdf).

3.2 Research Tools

For the baseline, the questionnaire was developed and contextualised from the KPC Rapid Catch Survey. Additional questions added were specific to the context of Timor-Leste and reflected the CITL program indicators. Questions were grouped into the following sections: ANC, Delivery, Danger Sign Knowledge, Family Planning. The survey was translated into Tetum and pre-tested to ensure that the questions capture the desired information. The endline used the same survey.

3.3 Materials and Procedures

For mobile data collection, the team used tablets by uploading the endline survey through ONA[3] (open source). This enabled the enumerators (four females, two males) and team leaders (two males) to collect and upload data while in the field, as well as clean data remotely through a server provided there was connectivity.

Before conducting the interview, the interviewer introduced the survey (explaining its purpose, topics to be covered and length of interview) and sought the consent of the women to continue. It was made clear that a woman could refuse to participate (in which case the team would select an additional household) and that they would remain anonymous. In addition, consent to participate was collected by the respondent electronically signing the tablet. A JPG of the electronic consent signature was uploaded to the server.

3.4 Training

Enumerators were externally hired and were trained by CITL IT manager, program staff and endline team leaders. The team was trained in the survey and mobile data collection on 17-19 April prior to endline survey being completed in Covalima (20-27 April) and Atsabe (2-9 May). Trained ensured that the team leaders and enumerators clearly understood all of the questions presented in the KPC Survey Questionnaire, and the procedures for selecting eligible respondents. In addition, the training workshop provided an opportunity for enumerators to practice interviewing skills and for team leaders to practice quality control mechanisms.

3.5 Data Management and Analysis

Following completion of each site, the team leaders checked the aggregate data sets uploaded on the server. IT manager and Program Quality team also checked data periodically. The data was then exported into Excel. Excel and ONA were used to analyse data against the indicators tabulated.

3.6 Limitations

The CITL KPC baseline survey used a cluster sampling methodology. Cluster sampling methods often provide survey findings that are less precise than the findings obtained using simple random sampling. This comes from the potential bias of sampling in groups (of households or individuals) rather than sampling individuals, called the 'design effect'. Sampling in groups presents a possible bias because behaviour among group members is more likely to be similar. A sample of these groups, therefore, may not be as representative of the entire population under study as a sample of randomly selected individuals. To analyse data from a sample survey, the design features of the sampling strategy need to be included in the analysis by using analytical methods appropriate for handling correlated data collected with unequal probability of selection.

Despite the limitations of sampling, the replication of sampling technique allowed for a comparable data set between baseline and endline of project sites. The baseline to endline comparison is able to indicate changes in the population who are in the target areas (project sites). There are limits to the extent to which changes is attributed directly to the project activities given the random sampling included project beneficiaries and non-project beneficiaries. In order for the data sets to be comparable, it was more important to replicate methodology, rather than only interviewing project beneficiaries (which may have resulted in a smaller, insignificant sample

---

[3] https://ona.io/home/

size). There are also limits of the extent to which we can track direct changes to knowledge, practice and attitudes at an individual level given we did not track the same individuals throughout the life of the project.

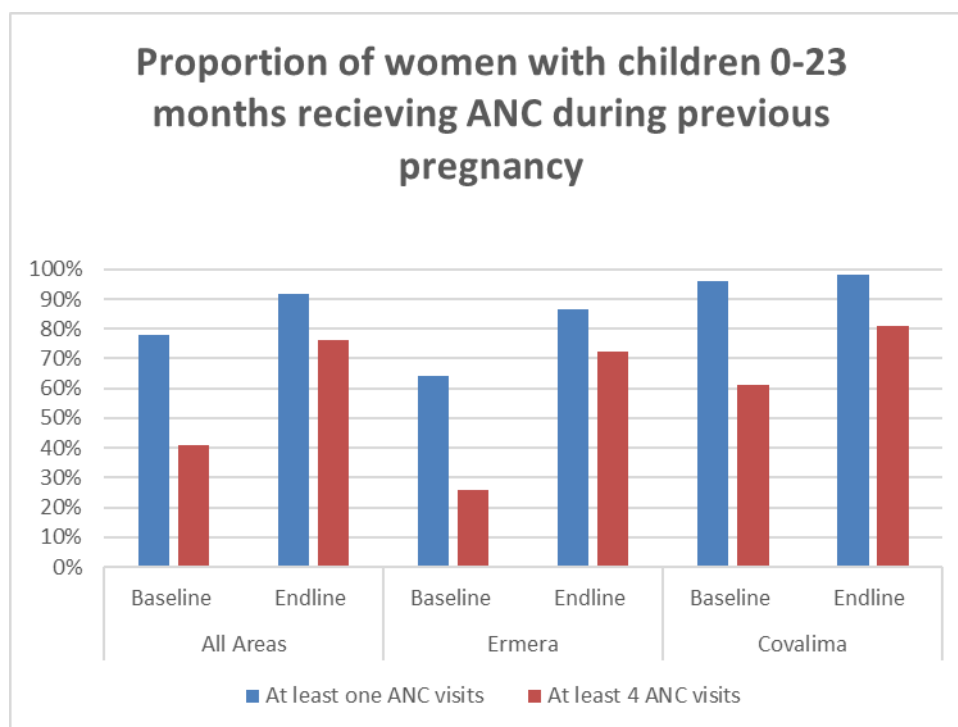Another challenge that the endline revealed were some discrepancies in cluster and aldeia identification from the respondents. In some areas respondents were living in one site but claimed to be from another site. In this instance, the endline time leader used judgement to establish where the respondent mostly lived during the life of the project.

4. Results

4.1 Overview of Key Program Indicators

Indicator	All Areas		Ermera		Covalima	
ANC	Baseline	Endline	Baseline	Endline	Baseline	Endline
Percentage of women with children 0-23 months surveyed report receiving at least once ANC visits in target areas by project end	78%	92%	64%	87%	96%	98%
Percentage of women with children 0-23 months surveyed report receiving at least four ANC visits in target areas by project end	41%	76%	26%	72%	61%	81%
Percentage of women with children 0-23 months report satisfaction with ANC services received during last pregnancy.	94%	90%	88%	86%	100%	95%
Percentage of mothers of children age 0-23 months who received iron during an antenatal consultation	78%	92%	62%	87%	98%	98%
Percentage of women with children 0-23 months report being screened for malnutrition during their pregnancy	77%	87%	62%	80%	96%	95%
Percentage of women with children 0-23 months reported receiving ANC from a skilled provider	78%	92%	62%	87%	99%	98%
Delivery						
Percentage of women with children 0-23 months report delivery with a skilled birth attendant in target areas by project end (BA1 A-C)	28%	39%	17%	24%	43%	57%
Percentage of women with children 0-23 months report delivery assisted by Appropriate/Trained health professional (BA1 A-D)	31%	39%	21%	24%	45%	57%
Percentage of women with children 0-23 months report delivery assisted by TBA (BA1 F & H)	16%	10%	25%	11%	3%	9%
Percentage of women with children 0-23 months report delivery assisted by a PSF (untrained community health worker	2%	0%	3%	0%	0%	0%
Percentage of women with children 0-23 months report delivery assisted by Relative/Friend	58%	15%	57%	54%	58%	32%
Percentage of women with children 0-23 months report delivery assisted with no one to help	4%	5%	7%	9%	0%	0%
Proportion of women delivering at home	81%	76%	91%	88%	67%	60%
Percentage of women with children 0-23 months report satisfaction with labour and delivery services received during last pregnancy	88%	94%	84%	91%	93%	96%
Percentage of women with children 0-23 months surveyed report receiving postpartum care within two days after childbirth in target areas by project end	36%	44%	26%	31%	50%	58%
Percentage of mothers of children age 0-23 who received a post-partum visit from an appropriate trained health worker within one week after the birth of the youngest child.	38%	50%	27%	38%	53%	65%
No postpartum check given	55%	42%	62%	53%	45%	28%
Percentage of women with children 0-23 months report receiving PNC within one week after childbirth in target areas by project end	43%	50%	36%	38%	53%	65%
Percentage of women with children 0-23 months report satisfaction with postpartum services received during last pregnancy	98%	58%	81%	46%	96%	71%
Danger Sign Knowledge						
Percentage of mothers of children 0-23 months who know at least two pregnancy danger signs	55%	61%	51%	67%	61%	53%
Percentage know at least two danger signs during delivery	59%	76%	51%	75%	71%	77%
Family Planning						
Percentage of women with children 0-23 months report using modern family planning methods in target areas	28%	41%	11%	20%	52%	66%
Percentage of mothers of children 0-23 months know at least one modern method of contraception	63%	85%	46%	82%	84%	88%
Percentage of mothers of children 0-23 months know at least two modern method of contraception	42%	61%	25%	64%	65%	61%
Percentage of women with children 0-23 months using contraception, report satisfaction with family planning services received during last pregnancy	88%	96%	80%	96%	91%	96%
Percentage of mothers of children age 0-23 months who received modern contraception from a skilled provider	28%	41%	9%	20%	52%	66%
Proportion of mothers using modern contraceptive methods who accessed through a SISCA/Outreach	4%	5%	13%	4%	2%	6%
Proportion of mothers using modern contraceptive methods who accessed through a Hospital, CHC or Health Post	93%	90%	73%	77%	98%	67%
Proportion of those using modern contraception methods that accessed it through a skilled provider	97%	100%	87%	100%	100%	100%
Method used – Hysterectomy	1%	0%	7%	0%	0%	0%
Method used – Injection	78%	88%	53%	89%	85%	87%
Method used – Implant	4%	3%	13%	7%	2%	1%
Method used – Pill	7%	7%	0%	0%	9%	10%
Method used – lactational	3%	0%	0%	0%	4%	0%
Method used – Traditional	3%	2%	13%	4%	0%	1%

6.2 Antenatal Care

Proportion of women with children 0-23 months recieving ANC during previous pregnancy


Of the mothers of children 0-23 months surveyed, 92% reported receiving at least one ANC visit during their pregnancy with their youngest child, an increase from 78% at the baseline. This percentage increase was much higher in Ermera, which increased 23% than in Covalima, which increased 2% given the relatively high baseline of 96% in Covalima. Although this figure dropped when the same group of women were asked if they received at least four ANC visits (76% in Ermera and 81% in Covalima) there was a 35% improvement on across all project sites surveyed. Of the women who reported to receive at least one ANC visit in the endline survey, 100% reported a skilled birth attendant provided the visit.
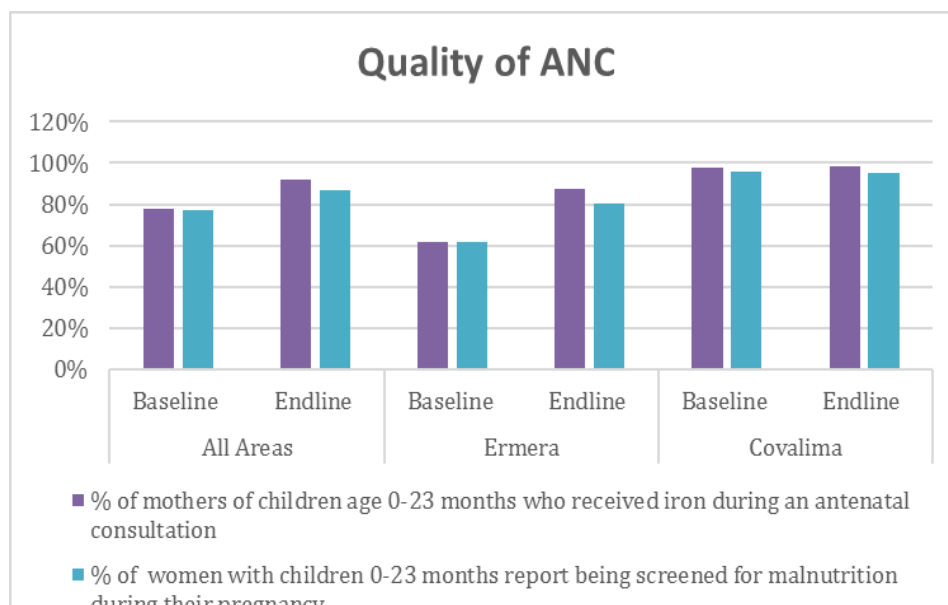
There was an overall drop in reported satisfaction with ANC services from 94% to 90%, with a more marked drop in Covalima (5% decrease). This may be due to changes in increased expectations of quality rather than actual service quality decline given there was an increase in reported services (iron supplements and malnutrition screening) provided during ANC as demonstrated in the graph above.

6.3 Delivery
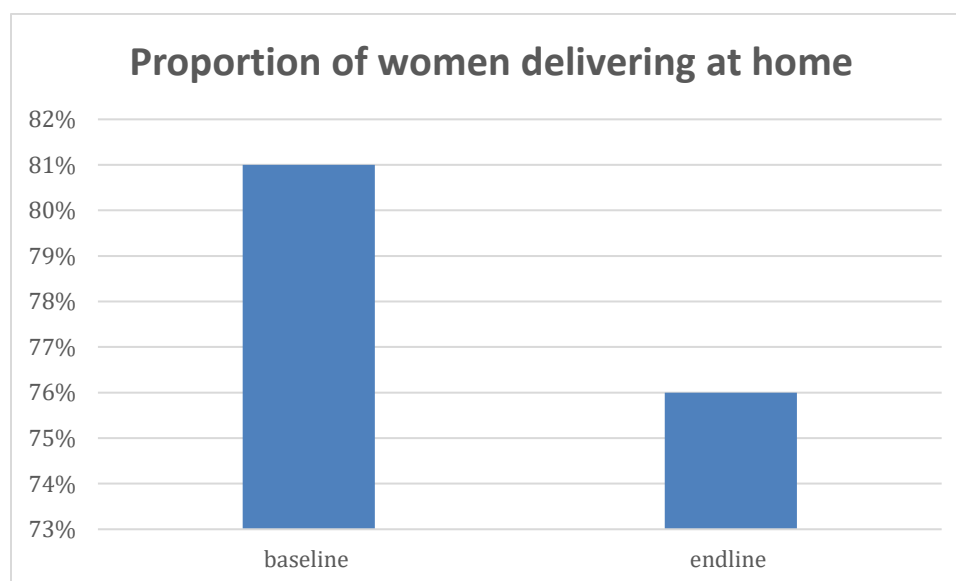
The proportion of mothers of children aged 0-23 months who delivered at home was reported to be 76% which decreased from 81%. This decrease was more evident in Covalima with a 7% reduction from 67% to 60%, than in Ermera that still reported 88% of births were in the home, as compared with 91% reported in the baseline.

As shown in the table below, women were asked who attended their last delivery. There was an overall 11% increase in women with children 0-23 months reported delivering with a skilled birth attendant (now at 24% in Ermera, and 57% in Covalima respectively). There was a smaller (8%) improvement in reported delivery assisted by an appropriate/trained health professional due to a higher baseline rate (31%) which included mothers reporting during the baseline survey '*other health staff with midwifery skills*' attended. Rates of deliveries assisted by traditional birth attendants (TBA) dropped considerably in Ermera from 25% to 11%. Interestingly, whilst there was an overall decline in TBA assisted deliveries the reported rates in Covalima actually increased from 3% to 9%. TBA trends reflect newer Government and project strategy approaches not to invest in TBAs as the government does not recognise the TBAs[4].
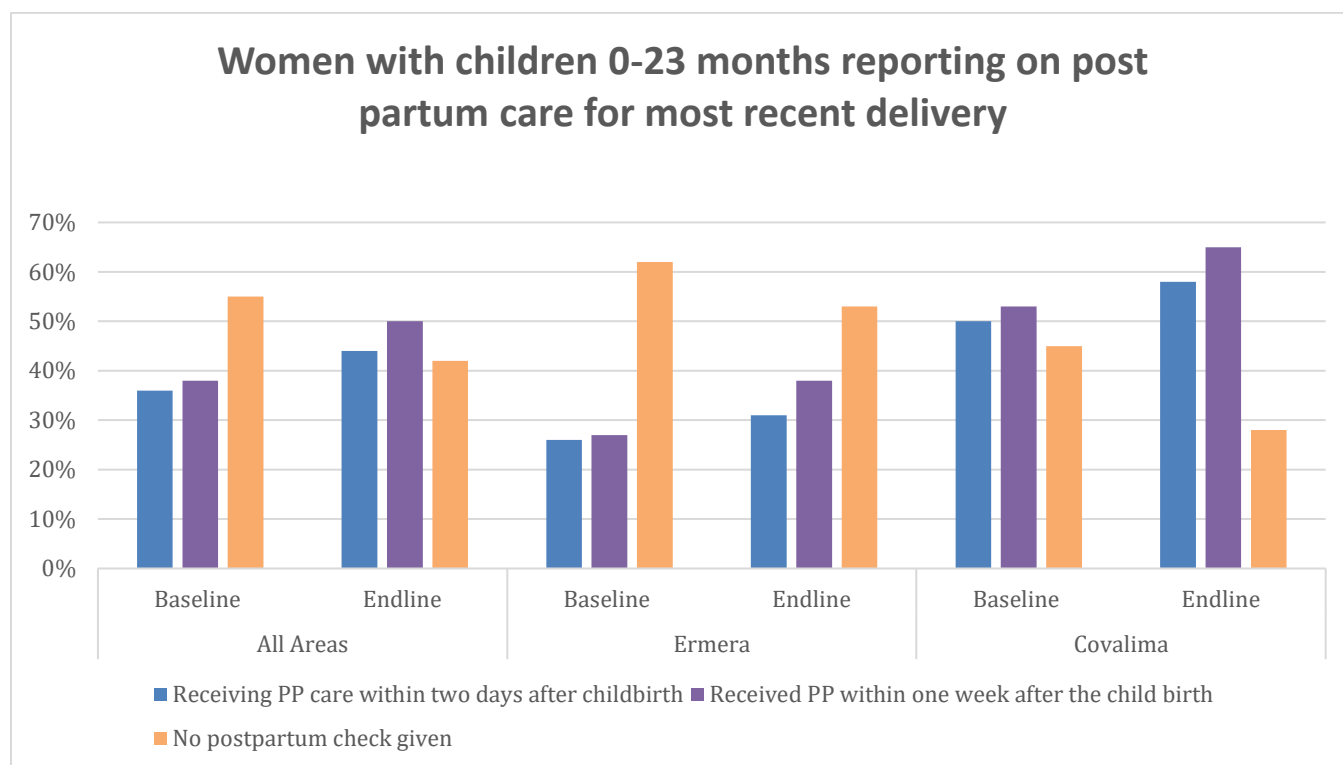
Receiving assistance during delivery by a relative or friend was reported to have dropped from 57% to 54% (Ermera) and 58% to 32% (Covalima). This decline is reasonable given the increase during endline survey of mothers reporting assistance provided by skilled birth attendants. In Ermera, 9% of women reported no assistance during delivery in Ermera (a slight increase from a baseline of 7%) and no women in Covalima reported an unassisted delivery. There was an increase in reported satisfaction with the labour and delivery services. 94% of women with children aged 0-23 months reported satisfaction with the labour and delivery services they received during their last pregnancy, an increase of 6% from the baseline survey.

Proportion of women with children 0-23 months reporting on who assisted with delivery*
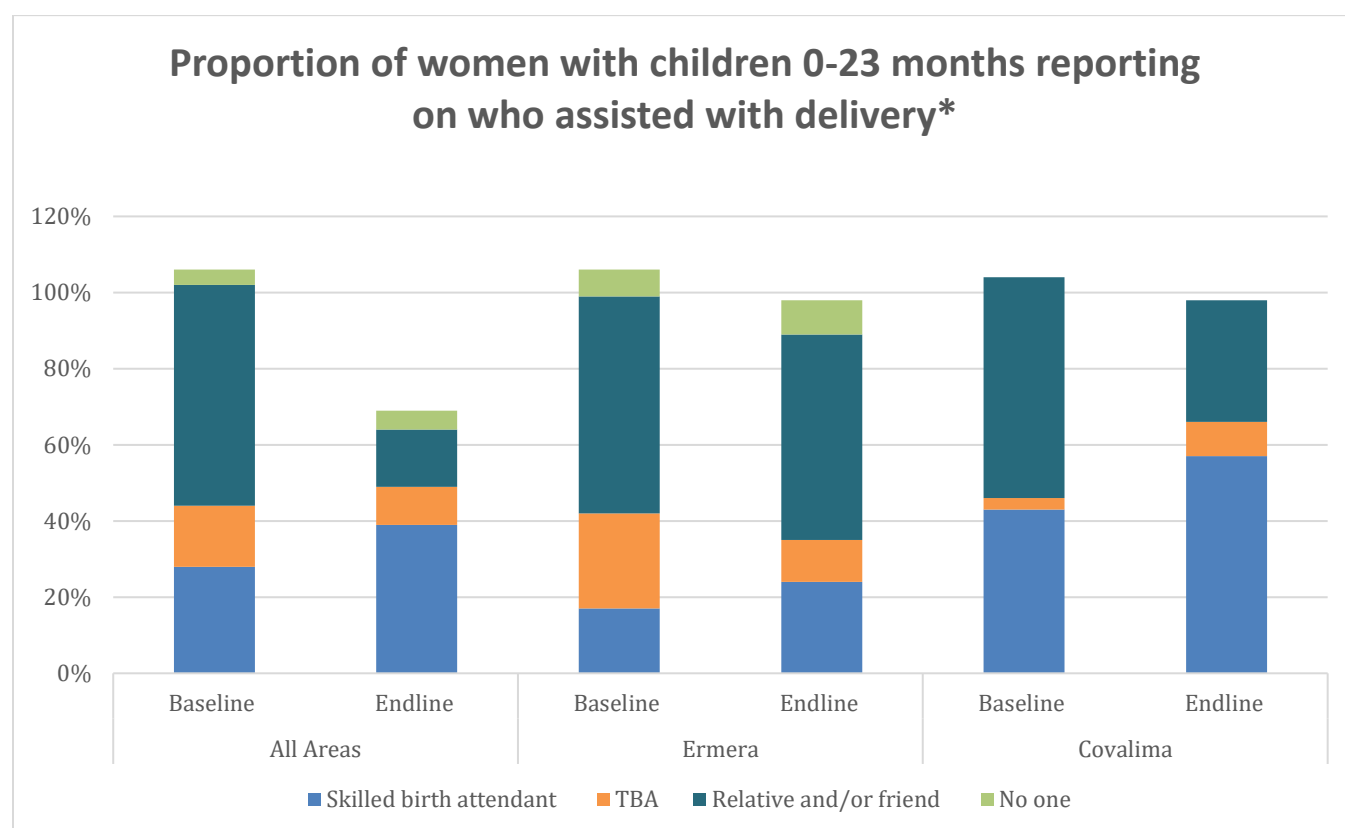
* note respondents could choose multiple options

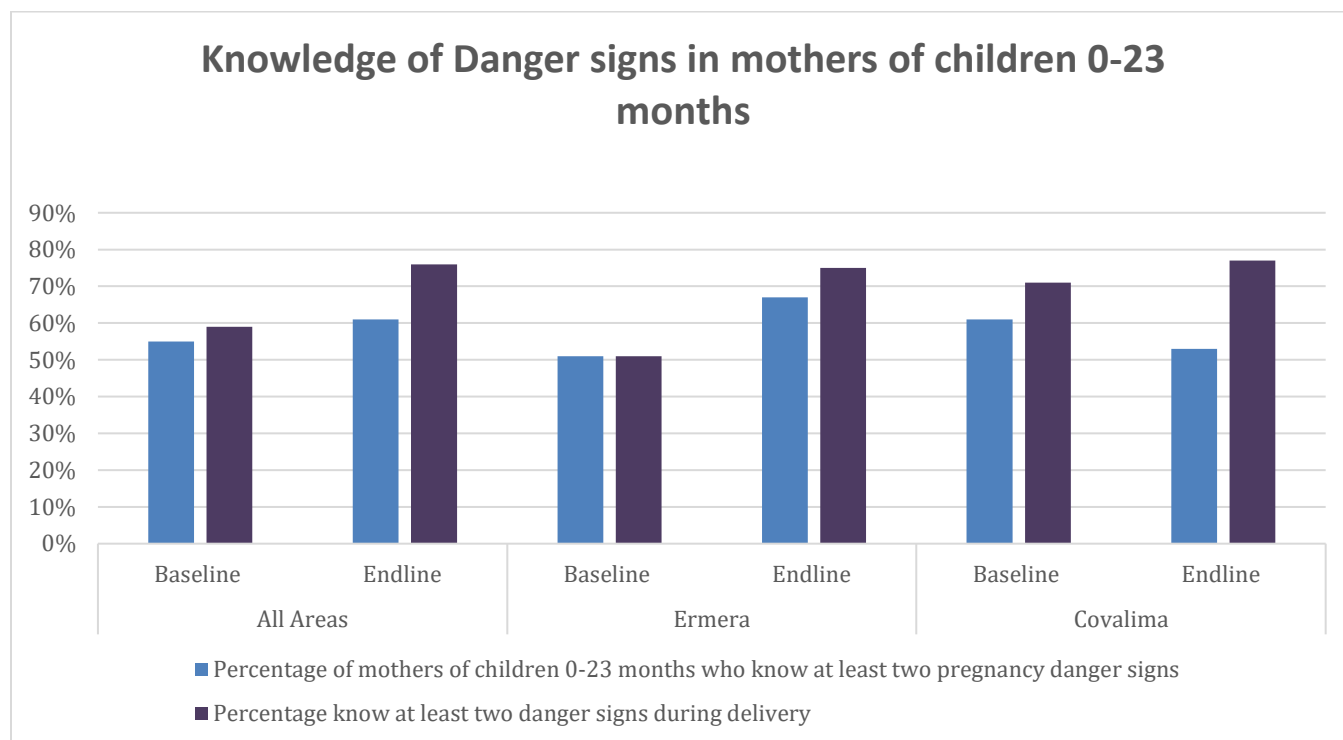[4] Ingham, X. May 2016. CARE International in Timor-Leste, Safe Motherhood Project Mid-term Review.

Postpartum Care

Women with children 0-23 months reporting on post partum care for most recent delivery

Legend:
- Receiving PP care within two days after childbirth
- Received PP within one week after the child birth
- No postpartum check given

As displayed in the table above, there was an increase in women reporting to receiving postpartum checks in project site areas. 42% of women reported receiving no postpartum checks, a decline from 55%. There was also an increase in women receiving postpartum care within two days after childbirth (36% during baseline to 44% in endline) with an increase of 5% in Ermera and 8% in Covalima. The improvements were more pronounced for women reporting receiving a postpartum visit from an appropriately trained health worker within one week after giving birth, with a reported percentage increase of 11% in Ermera and 12% in Covalima

6.4 Danger Sign Knowledge

Knowledge of Danger signs in mothers of children 0-23 months

Legend:
- Percentage of mothers of children 0-23 months who know at least two pregnancy danger signs
- Percentage know at least two danger signs during delivery

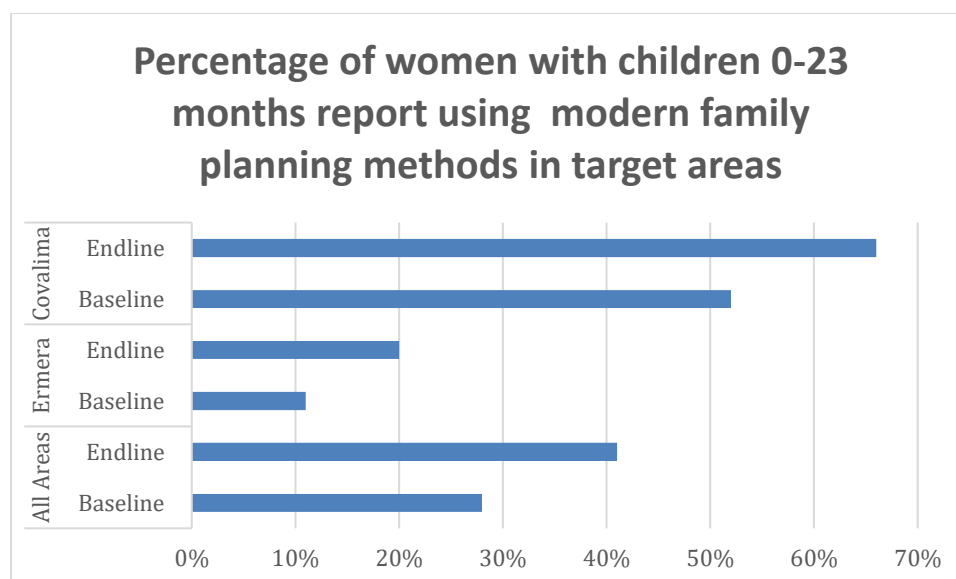There was a noteworthy overall increase from 59% to 76% of mothers who knew at least two danger signs during delivery. And there was an overall increase in mothers who knew at least two pregnancy danger signs from 55% to 61%. This improvement was more evident in Ermera than Covalima, despite starting from a lower knowledge base as shown in the table above.

6.5 Family Planning

Women with children 0-23 months knowledge of family planning methods

Legend:
- ■ Know at least one modern method of contraception
- ■ Know at least two modern method of contraception
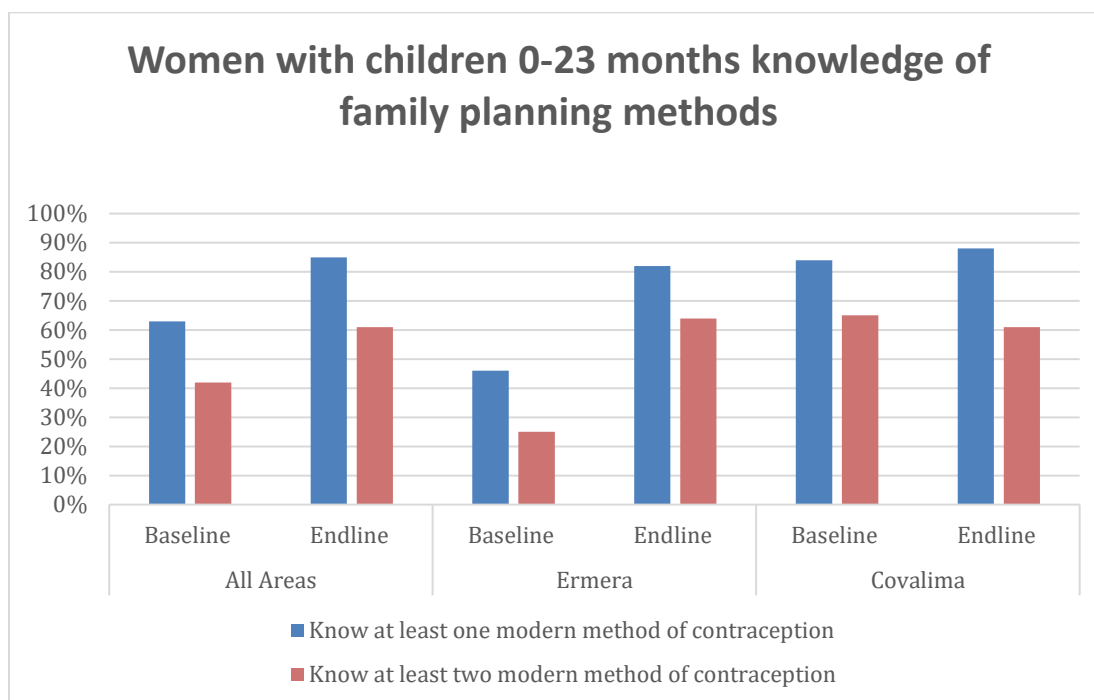
Women's knowledge about contraception also improved across project sites. The percentage of mothers of children 0-23 months that knew at least one modern method of contraception was 85% (increased from a 63% baseline), with a distinction of 82% in Ermera (increased from a 46% baseline) and 88% (increased from an 84% baseline) in Covalima.

The figure reduced to 61% when mothers were asked if they knew at least two forms of modern methods of contraception, which was still a marked increase from the baseline rate of 42%. Similarly, the increase in knowledge was more prevalent in Ermera that had a much lower baseline as shown in the graph above, with a minor decrease from 65% to 61% in Covalima.

Percentage of women with children 0-23 months report using modern family planning methods in target areas

Covalima
- Endline: ~66%
- Baseline: ~52%

Ermera
- Endline: ~20%
- Baseline: ~11%

All Areas
- Endline: ~41%
- Baseline: ~28%

(Axis: 0% 10% 20% 30% 40% 50% 60% 70%)

Across both municipalities, there was a 13% decrease of women with children 0-23 months reporting not to use modern family planning methods, as shown in the graph above. The contrast between the two municipalities was quite significant with a 9% increase of women in Ermera using modern family planning methods, and a 16% increase in Covalima.

Choice of methods of those using family planning

Legend: Hysterectomy, Injection, Implant, Pill, Lactational, Traditional

Categories: All Areas (Baseline, Endline), Ermera (Baseline, Endline), Covalima (Baseline, Endline)
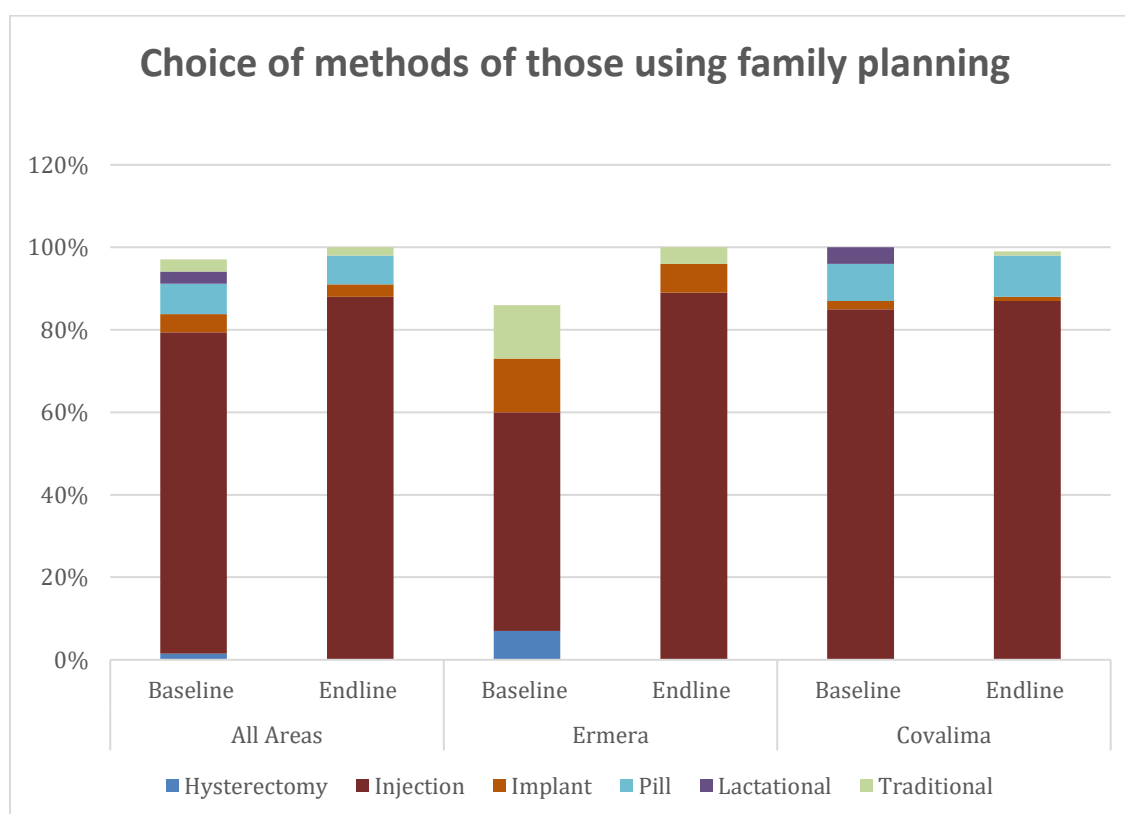
There were similar trends in the types of family planning methods used, with an overall increase in modern methods of contraception across the projects sites. Of those who reported using family planning, the majority (88%) used the injection. The next two most frequently reported methods used were the pill (7%) and an implant (3%) which was the same order of preference as indicated in the baseline. Detailed data on difference between choice of family planning method of those using family planning are shown in the graph above, noting traditional methods capture standards days method/cycle beads rhythm and withdrawal methods.

Of those women with children 0-23 months using contraception, there was an increase in reported satisfaction with the family planning services they received from 88% to 96% across project sites.
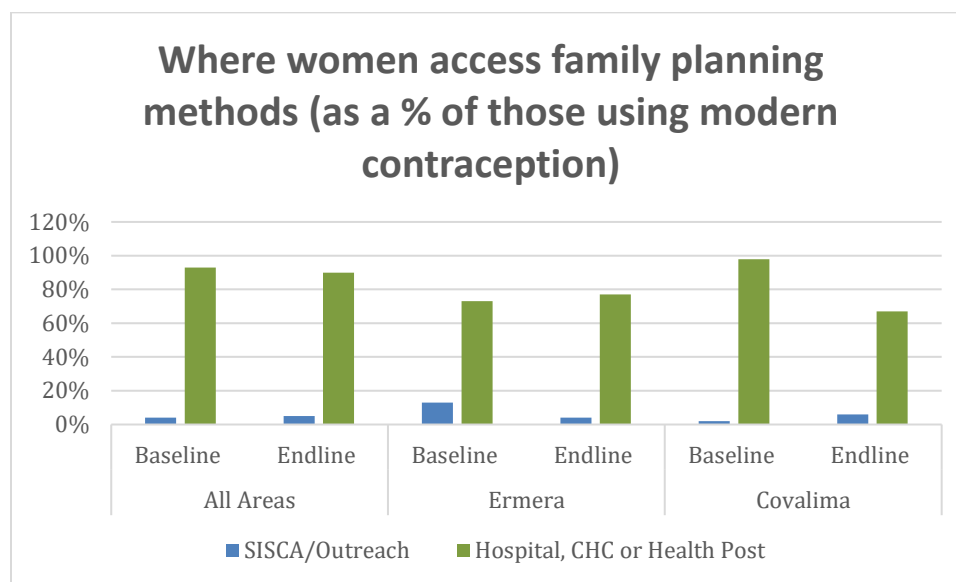
Women with children 0-23 months were asked where they accessed their family planning methods, as displayed in the table above. The vast majority (93%) accessed their contraceptives through a hospital, CHC or a Health Post. This reflected similar trends across all project site areas from the baseline (90%). There was a slight increase in Ermera (from 73% to 77%) and a slight decrease in Covalima (98% to 67%). Logically there was also a slight increase in those accessing family planning from SISCA/outreach in Ermera (from 13% to 4%) and a slight increase in Covalima (2% to 6%).

5. Conclusion

The Knowledge, Attitudes and Practice survey provides important data on changes observed from baseline (2014) to endline (2017) in regards to antenatal care, delivery, knowledge of danger signs and family planning. The observed changes are presented as an aggregate (all project sites) and segmented between the two municipalities where the project implemented activities. Whilst there were significant improvements in mothers' knowledge, attitudes and practices in sexual and reproductive health in project sites, there baseline-endline comparison provides limited evidence on the direct causal path that can be attributed for these changes. That said, in many aldeias CARE's Safe Motherhood Project was the only dedicated sexual and reproductive health intervention that was directly implementing activities to improve knowledge, attitudes and practices of women of reproductive age - through various strategies with different community stakeholders so it is reasonable to assume the results from

the baseline-endline were impacted by project interventions. Further, it is reasonable to assume that there were multiplying impacts from direct project beneficiaries to broader community members within an aldeia. Moreover, this was substantiated in the mid-term review,

> *In Ermera, 43% of MCG members report that they share SRMH knowledge with non-members and that this is easy to do (particularly within their own family)… In Covalima 59% find this easy.*

The baseline-endline comparison takes a sample of respondents within CARE project sites and therefore may or may not correlate to other data sets (including national level data) on improvements to sexual and reproductive health in Timor-Leste over the past four years.

The quantitative baseline-endline comparison shows some significant improvements to accessing and utilising maternal health services. The comparison of survey results revealed 35% more women with children 0-23 months completed the recommended four antenatal care visits during pregnancy. In Ermera[5], there were generally lower rates of access and utilisation of health services in 2014, but results identified impressive increases to the percentage of women receiving the recommended four antenatal care visits – now at 72%, up from 26%.

Interestingly, there was a less of an improvement to the percentage of women reporting to receive at least one antenatal visit than the increased percentage of women receiving four antenatal visits. This result could indicate that since project implementation fewer women felt that one ANC check was sufficient, even if their initial check did not reveal any complications. It could also reflect improvements to access, and/or improved knowledge that recommended four antenatal checks can assist in identifying and managing risks during pregnancy and delivery.

This is reinforced by overall evidence that there was a 17% increase in women's knowledge about danger sings during delivery despite an 8% reduction in women's knowledge in the sample size in Covalima. The decrease in knowledge in Covalima is a concerning trend and should be prioritised for future work in this municipality. Although the endline-baseline did not capture improvement in men's knowledge about danger sign and family planning, engaging men and boys was a focus of the Safe Motherhood Project and results were evident in the mid-term review,

> *Husbands and parents in law who were active in the MCGs were also able to list pregnancy and birth danger signs, and also tended to know about and could list the benefits and methods of family planning methods and birth spacing.*

Overall, the reported quality of antenatal care improved, with the vast majority of women receiving malnutrition screening a, iron supplements from a skilled service provider. Reported satisfaction with antenatal services decreased slightly (4%) but this may be due to an increased level of awareness and expectation of the quality of antenatal service provided.

Improvements to antenatal care (access and quality) improved more than other areas such as safe delivery and contraception that may be more difficult to change due to systemic issues with maternal health service provision

---

[5] As per SMP Baseline Report (2014) this is likely linked to poor education and access to health services, with higher levels of the population receiving no or limited education in Ermera compared to Covalima (Timor-Leste Demographic and Health Survey 2009-10), and a more mountainous landscape and much poorer road conditions in Ermera municipality.

and social and gender norms which influence maternal and reproductive health seeking behaviours including contraception.

A clear distinction exists between Ermera and Covalima municipalities in terms of accessing and utilising maternal health services. In fact, Ermera municipality reported poorer outcomes across all of the indicators covered in the baseline survey but these mostly improved during the lifetime of the project. The showed mixed results in Covalima, which had relatively high access and utilisation baseline rates with some downwards trends, which could be explored during future project interventions. For example, declines in knowledge about danger signs during pregnancy (aforementioned); 6% increase in number of women reporting to deliver with a traditional birth attendant despite no longer being an endorsed as a recognised maternal service; and a 4% decline in number of women knowing at least two forms on contraception, despite overall contraception use increasing in Covalima with the vast majority using injections.

There were some positive trends to delivery practices with an 11% increase of women giving birth with a skilled birth attendant and a 5% decrease of home deliveries. That said, further improvements are needed given more than half of women (61%) reported to give birth with no skilled birth attendant which continues to pose risks to the mother and child during delivery. Home births remain high (88% in Ermera, 60% Covalima) which reflects ongoing difficulties in accessing and utilising health centres. This is despite 76% of women receiving four antennal checks, which may indicate access, and utilisation challenges are exacerbated during pre-labour and labour. The mid-term review correlated this trend, noting that whilst the project encouraged birth preparedness plans, they may not have addressed key barriers to access and utilisation,

> *…knowledge on safe birth planning was still relatively low compared to other types of knowledge, such as pregnancy and birth danger signs and family planning benefits. The questions about safe birth planning with respondents revealed a focus on preparation of clothes for mother and baby, rather than preparing money to get to the hospital and making decisions about where to labour and birth.*

Interestingly, satisfaction with pregnancy and delivery services improved by 6% to a 94% satisfaction rate. This suggests that women continue to be quite satisfied delivering at home and/or without a skilled birth attendant. This could reflect a genuine satisfaction, an indication that women do not understand the benefits of delivering under safer conditions, acceptance that their option to do so is limited, or a combination of these factors. Either way, these results demonstrate a need to generate demand for services at the community level, which would involve increasing the knowledge of community members in terms of what is at stake, for example death during childbirth, and the possible measures that could be taken to prevent this from happening.

The reverse trend was evident for postpartum/postnatal care. The evidence suggest more women are receive postpartum care services (12% more women reported to receive postpartum services within one week) but are significantly less satisfied with the quality of postpartum services received during last pregnancy which dropped from 98% to 58% across project sites. This could indicate increased knowledge and attitudes of the importance of postpartum care, and a genuine demand from respondents to improve quality and access of postnatal services.

The survey revealed a 13% improvement to use of modern family planning methods, now at 41% across project sites and up to 66% in Covalima. There was a much stronger improvement to the proportion of women reported knowing at least one modern method of contraception (22% increase) than those who reported using contraception. In fact, the gap between knowledge and use increased in both municipalities with a greater differential in Ermera. Project learning indicates that although women know about contraception they due not necessarily use it due to logistical access and decision making in the household. This confirms the gender and

power analysis that was conducted for the Safe Motherhood project which revealed a link between decision making and contraception use. It revealed that women were often not allowed to make this decision and that men often wanted many children as they had paid *barlake* (bride price) and therefore felt entitled to them.

Of those women using contraception, 100% of women reported to access from a skilled service provider, which may reflect increasing trends in contraception use which needs to be inserted by a trained provider (injection). Injection was by far the most utilised form of modern contraception in the baseline both in Ermera (53%) and Covalima (85%). This further increased by 36% (Ermera) and 2% in Covalima. Without further research, and deeper consultation with stakeholders who specialise in family planning it is difficult to determine exactly why injection continues to be the most popular form of family planning. One reason could be linked to a lack of support from husbands and/or in-laws to use family planning. Injection is a discreet form of contraception that a woman could use without others knowing she is doing so. Another reason may be the injection might be more readily accessible and provide a contraception that is effective over a longer period.

In summary, the baseline-endline comparison provided some valuable data on changes identified to knowledge, attitudes and practices of women with children 0-23 months in project site areas. Whilst some trends are encouraging, particularly in Ermera where baseline figures were poor, some areas such as safe delivery and contraception remain more challenging than others such as antenatal care.

Annex 1: KPC Survey

A copy can be viewed at:

Annex 2: KPC Survey Sample Size Calculations used in Baseline

1. Calculating the Size of a Simple Random Sample

The sample size formula for a simple random sample is as follows:

n = z2 (pq)/d2

where *n*= sample size; *z*= statistical certainty chosen

p= estimated level/coverage to be investigated q= 1-p d= precision desired

Usually, the value of *p* is not known, in which case you can be conservative and choose p=0.5. This will give you the largest possible sample size for your study.

The value of *d* depends on your desired level of precision and should be chosen according to the objectives and needs of the survey. A precision of 10% (d=0.1) is widely used and is acceptable if your project seeks information for project management purposes.

When assigning the value of *z,* most studies assume a 95% confidence level. A 95% confidence level means that there is a 95% chance that the true rate in the population is within the range of values defined by the confidence limits of your survey's estimate. The corresponding *z* value for a 95% confidence level is 1.96.

Using the above values, the sample size needed for a random sample survey is as follows:

n = (1.96)2 (.5 x .5)/(.1)2

n = (3.92)(.25)/(.01)

n = 98

2. Design Effect in Cluster Survey's

People of the same religion, socioeconomic status, or language/ethnic group tend to live closely together. Individuals who share these background traits are also likely to share similar behaviours and practices. This 'sameness' (homogeneity) leads to a bias called the design effect. The design effect exists because individuals selected from neighbouring households within a given cluster are more likely to share the same knowledge and practices than individuals who are selected randomly from the general population. To compensate for this bias, the size of a cluster sample should be approximately double the size of a simple random sample.

The sample size formula above resulted in a sample size of 98. Multiplying 98 by 2 equals 196. For KPC surveys, the sample size is further increased to 240 (6 interviews in each cluster) because KPC surveys are used to estimate coverage for many different technical interventions, not just for immunization. A sample size of at least 240 is usually adequate for looking at sub-samples (such as children age 0–5 months to assess exclusive breastfeeding), because the objective is to use KPC information to make management and programming decisions.

Annex 3: Sample Endline (2017)

Municipality	Sub-Municipality	Suco	Aldeia	Total Respondents
Covalima	TILOMAR	LALAWA	Ai Oan	8
	TILOMAR		Kota Foun	9
	TILOMAR		Salele Boot	5
	TILOMAR	FOHOLULIK	Fatuk metan	2
	TILOMAR		Foholulik	7
	TILOMAR		Maubesi	5
	TILOMAR		Niquir	7
	FUTULULIC	FATULULIC	Aitourn	6
	FUTULULIC		Beco	5
	FUTULULIC		Baidasi	7
	FUTULULIC	TAROMAN	Holba	9
	FUTULULIC		Taroman	Removed from sample
	FUTULULIC		Fatuloro	7
	MALKATAR	HOLPILAT	Lela	7
	MALKATAR		Leogore	6
	MALKATAR		Manulor	6
	MALKATAR		Nainare	10
				Sub total 106
Municipality	Sub-Municipality	Suco	Aldeia	Total Respondents
Ermera	ATSABE	LAUBONU	Biabote	7
	ATSABE		Purugua	5
	ATSABE		Sirui	7
	ATSABE	OBULO	Suriubu	9
	ATSABE		Mutu-Ubu	5
	ATSABE		Obeto	5
	ATSABE		Lacoubu	6
	ATSABE		Atu-Lara	6
	ATSABE		Bili-Ubu	6
	ATSABE	LAIMEA-LETEN	Leulara	7
	ATSABE		Ahi-Gara	8
	ATSABE		Rae-Bou	8
	ATSABE		Orbeto	8
	ATSABE		Olecata	6
	ATSABE		Bui-Baru	7
	ATSABE	BATUMANU	Batu-manu	7
	ATSABE		Batu'u	6
	ATSABE		Motu -Bau	6
	ATSABE		Batu-Ero	7
				Sub total 127

Annex 4: Sample Basline (2014)

Municipality	Sub-Municipality	Suco	Aldeia	Cluster
Covalima	TILOMAR	LALAWA	Ai Oan	1
	TILOMAR		Kota Foun	2
	TILOMAR		Salele Boot	3
	TILOMAR	FOHOLULIK	Fatuk metan	4
	TILOMAR		Foholulik	5
	TILOMAR		Maubesi	6
	TILOMAR		Niquir	7
	FUTULULIC	FATULULIC	Aitourn	8
	FUTULULIC		Seco	9
	FUTULULIC		Baidasi	10
	FUTULULIC	TAROMAN	Holba	11
	FUTULULIC		Taroman	12
	FUTULULIC		Fatuloro	13
	MALKATAR	HOLPILAT	Lela	14
	MALKATAR		Leogore	15
	MALKATAR		Manulor	16
	MALKATAR		Nainare	17
Municipality	**Sub-Municipality**	**Suco**	**Aldeia**	**Cluster**
Ermera	ATSABE	LAUBONU	Biabote	18
	ATSABE		Purugoa	19
	ATSABE		Sirui	20,21
	ATSABE	OBULO	Suriubu	22
	ATSABE		Mutu-Ubu	23
	ATSABE		Obeto	24
	ATSABE		Lacoubu	25
	ATSABE		Acu-Lara	26
	ATSABE		Bili-Ubu	27
	ATSABE	LAIMEA-LETEN	Leulara	28,29
	ATSABE		Ahi-Gara	30
	ATSABE		Rae-Bou	31, 32
	ATSABE		Orbeto	33
	ATSABE		Olecata	34
	ATSABE		Bui-Baru	35,36
	ATSABE	BATUMANU	Batu-manu	37
	ATSABE		Batu'u	38
	ATSABE		Motu -Bau	39
	ATSABE		Batu-Ero	40