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## FINAL REPORT

# CASAS MATERNAS IN THE RURAL HIGHLANDS OF GUATEMALA: A CASE STUDY OF THEIR INTRODUCTION, UTILIZATION AND EQUITY OF UTILIZATION BY INDIGENOUS POPULATION

**CURAMERICAS GUATEMALA**

**CURAMERICAL GLOBAL**

**Locations included in study: San Sebastián Coatán, Huehuetenango, Guatemala**

**Date Completed: May, 2015**

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## ABBREVIATIONS

*Please list any abbreviations used in the text.*

<b>APHA</b>	American Public Health Association
<b>CBIO</b>	Census- Based, Impact-Oriented
<b>CORE</b>	
<b>CUNOC</b>	Centro Universitario de Occidente
<b>CSHGP</b>	Child Survival Health Grants Programs
<b>Km</b>	Kilometer
<b>KPC</b>	Knowledge, Practice and Coverage
<b>MMR</b>	Maternal Mortality Ratio
<b>NGO</b>	Non-Governmental Organization
<b>OR</b>	Operational Research
<b>PCA</b>	Principal Component Analysis
<b>SSC</b>	
<b>TRAction</b>	Translating Research into Action
<b>USAC</b>	Universidad de San Carlos de Guatemala
<b>USAID</b>	United States Agency for International Development

**\*\*Please replace gray italicized text with project specific information \*\***

## EXECUTIVE SUMMARY

**Background:** The municipalities in the isolated northwestern highlands of the Department of Huehuetenango in Guatemala have one of the highest maternal mortality ratios in the Western Hemisphere – 338 maternal deaths per 100,000 live births. Most births occur at home and are attended by traditional midwives (*comadronas*). In response to the need for improved maternity care, Curamericas (an international NGO) worked in partnership with communities to establish a program of *Casas Maternas*, where *comadronas* are encouraged to bring patients for delivery, trained staff are present, and access to referral care is facilitated. This study assessed facility delivery in partner communities served by two *Casas Maternas* with particular emphasis on equity and on the facilitators and barriers to facility delivery.

**Objectives:** The present Case Study focused specifically on the Casa Materna project and its implementation methodology, investigating both its impact on improving maternal and newborn health in San Sebastián Coatán and the contextual factors surrounding use of the services with particular emphasis on the equity of uptake.

**Activities accomplished data collected/ analyzed:** Extensive literature review was done in order to understand Casa Materna implementation methodology and experiences in other countries. Quantitative and qualitative data collection were done; a KPC survey to women who delivered in the study area between April 2013 and March 2014 (n=275) were interviewed. Focus group discussions and in-depth interviews were conducted in a purposive sample in the study area. Women who delivered, *comadronas*, and community leaders were interviewed. The survey data were analysed using Epi Info 7.1 and Stata 13. The qualitative data were manually reviewed and inductively grouped and coded into categories using descriptive content analysis.

**Findings:** In the partner communities (connected to a *Casa Materna*), 70% of the births delivered in a health facility compared to 30% in the non-partner communities. In the partner communities, 78% of the facility deliveries occurred in a *Casa Materna*. There was no statistically significant difference in uptake of the *Casa Materna* by level of education of the mother. Household wealth showed a very weak effect on uptake. Distance from the *Casa Materna* did have a pronounced effect when the distance to the *Casa Materna* was 4 or more kilometres. The *Comadronas* in the partner communities are strong advocates for utilization of the *Casa Materna* and play an important role in the decision regarding where the birth will take place.

**Challenges or barriers encountered:** Our case study is a pilot study in a small population concerning the early utilization of a new approach to maternity care in an area where the level of maternal mortality is quite high. Our study would have benefitted from stronger baseline data regarding health facility utilization prior to the introduction of the *Casas Maternas*. We noted underutilization of facilities in the partner communities among women in the poorest wealth quintile compared to that of women in all the other wealth quintiles combined, though this difference was not statistically significant (although it

was statistically significant when the lowest wealth quintile was compared with the 4<sup>th</sup>). But when combined with comments of some of the mothers regarding cost, especially cost of transportation, as a potential barrier to use of the *Casa Materna*, it could be that equity was not fully attained for these poorest of the poor and that the small numbers involved in the study did not allow for the statistical detection of this lack of equity. A final limitation is that, in the translation of interview questions and answers from Spanish to *Chuj* to back to Spanish and ultimately to English, some important meanings could have been lost, despite having bilingual Spanish/*Chuj* and Spanish/English staff translating.

**Conclusion:** Working with communities to establish *Casas Maternas* that provide high-quality, culturally appropriate and readily accessible maternity care in an isolated mountainous area of Guatemala where most births are still attended at home by traditional birth attendants (*comadronas*) provides a promising approach to reducing maternal mortality at low cost. Over half of the deliveries in the partner communities are now taking place in a *Casa Materna*. The uptake of this service, when carried out with strong community collaboration, is equitable but is not able to fully overcome geographic barriers for those who live at greater distances. *Casas Maternas* also provide opportunities for *comadronas* to continue in their traditional role of supporting mothers at the time of childbirth.

If the *Casas Maternas* are to succeed for the longer term at scale, they must consistently provide high-quality, respectful and readily accessible maternity care in a clean and safe environment. They will also need to recognize the essential role of community involvement in planning and building the *Casas Maternas* as well as the vital role that *comadronas* can play as cultural mediators and champions of facility delivery. Reducing maternal mortality will also require prompt recognition of complications and prompt transport to a referral facility. The approach is worthy of broader application in Guatemala and beyond.

## INTRODUCTION

Guatemala has a national maternal mortality ratio (MMR) of 140/10000,<sup>1</sup> which is the third-highest in the Western Hemisphere, surpassed only by Haiti and Bolivia. This national average hides marked regional and ethnic disparities. The MMR for indigenous women is twice that of non-indigenous women (163 and 78 per 100,000, respectively), and indigenous women account for 71% of the country's maternal deaths compared to 54% of the country's births.

Guatemala's Northwest Region and the department of Huehuetenango, which are predominantly Mayan, have amongst the highest maternal mortality ratios (MMRs) in Guatemala (226/1000).<sup>2</sup> To address these disparities, Curamericas/Guatemala, in collaboration with Curamericas Global, began a project in 2011 to expand equitable access to and use of maternal and newborn health services among 28,000 women of reproductive age in three isolated municipalities in the Department of Huehuetenango (Figure 1).

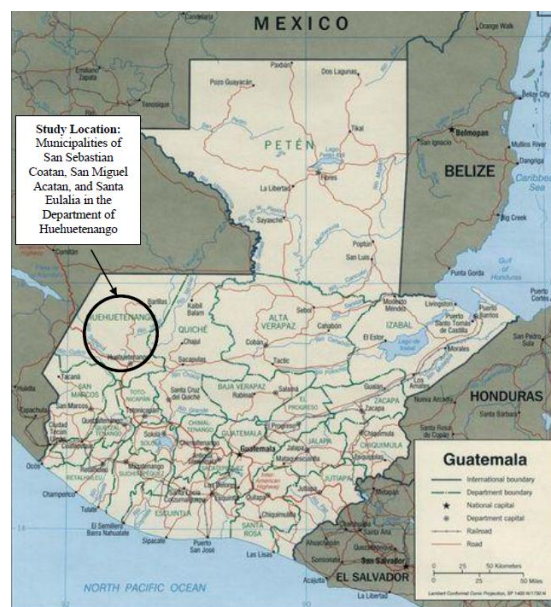


Figure 1. Location of Curamericas program in the northwestern highlands of Guatemala

Curamericas has been working in the area since 2002 to reduce the mortality of mothers and children through community-based primary health care services and community engagement. One of the persistent challenges has been that the extreme geographic isolation of the communities, lack of transport, and the cultural traditions of the area have produced a situation in which a 2011 survey revealed that 89% of deliveries were still occurring in the homes, and 81% were attended by traditional birth attendants known as *comadronas*.<sup>3</sup> Through its program of routine systematic home visitation and

registration of vital events, Curamericas documented over a 10-year period in the areas covered by its programs 104 maternal deaths among 30,780 births.<sup>3</sup> This represents a maternal mortality ratio of 338 per 100,000 live births, one of the highest reported in the Western hemisphere.

Beginning in 2011, Curamericas built on its previous engagement in the three municipalities where it had been working previously and initiated activities in 89 communities with a combined population of 42,755 (Phase 1). In Phase 2, which began in 2013, the project extended its activities to 94 additional communities with a combined population of 54,867 (Figure 2). The project integrates three key methodologies: a census-based, impact-oriented (CBIO) methodology to mobilize communities and ensure equitable coverage of services;<sup>4</sup> a Care Group methodology,<sup>5</sup> which uses community peer educators to generate behaviour change and demand for maternal/newborn services; and the *Casas Maternas* of Curamericas/Guatemala,<sup>6</sup> which provide access to culturally appropriate maternal services.

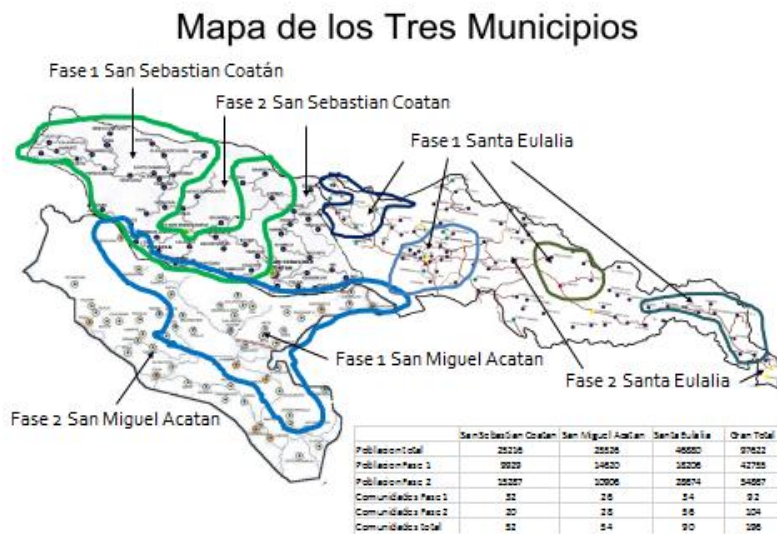


Figure 2 Map of the Curamericas program area showing the study area (Phase 1 communities of San Sebastián Coatán)

A key component of the current program is the *Casa Materna*, which translated literally from Spanish means maternal house. The *Casa Materna* is a response to the lack of availability of around-the-clock delivery care in the program area. In the three municipalities of the Curamericas program, there was only one facility that attended deliveries prior to the operation of the *Casas Maternas*, and it was open only Mondays to Fridays during the day. This facility was operated by the government and was difficult to access because of the terrain, lack of transportation, and costs involved. Furthermore, the staff were frequently not present at all times, they were generally staffed by persons who speak only Spanish, and *comadronas* were not allowed to assist with the delivery.

*Casas Maternas* are conveniently located, community-owned, and community-maintained birthing centers. They are staffed permanently by one of three teams, each consisting of one auxiliary nurse and

two helpers. One team is always present to attend deliveries in a culturally acceptable manner 24 hours a day, 7 days a week. Patients are attended to in their native language, and their family members are permitted to visit and perform traditional spiritual practices. The woman's *comadrona* is also encouraged to come and participate in the delivery.<sup>6</sup> The *Casa Materna* program is linked with a strong outreach delivery system using volunteers to reach every household every two weeks to give educational messages and register vital events.

To examine whether the *Casas Maternas* have contributed to increasing health facility deliveries, we conducted a mixed-methods study in the San Sebastian Coatán, a municipality with 32 communities which was part of the 2011 Phase 1 activities. The specific objectives of the study were to examine the degree to which the utilization of *Casas Maternas* has been equitable in terms of family income, educational level of the mother, and distance from the *Casa Materna* and the factors that influenced the use of the *Casa Materna* by women in the communities.

The present Case Study focused specifically on the Casa Materna project and its implementation methodology, investigating both its impact on improving maternal and newborn health in San Sebastián Coatán and the contextual factors surrounding use of the services with particular emphasis on the equity of uptake.

**Methods:** Women who delivered in the study area between April 2013 and March 2014 (n=275) were interviewed. Focus group discussions and in-depth interviews were conducted in a purposive but representative sample in the study area. Women who delivered, *Comadronas*, and community leaders were interviewed.

## ACTIVITIES COMPLETED

- **Literature reviews:** The literature on *Casas Maternas* in the Americas is limited, but there are two recent examples in which similar approaches have been tried unsuccessfully.<sup>9, 10</sup> In both, community engagement and community ownership were absent, suggesting that these factors are particularly important for explaining the success of the *Casas Maternas* in the Curamericas program area of Huehuetenango.
- **Quantitative data collected/ analysed:** KPC survey was done in September 2014 by a team of 12 trained bilingual Chuj women. Of the 321 women identified from the vital events registration system, 46 had moved out of the area, could not be located, or refused to be interviewed, 275 were interviewed.
- **Qualitative data collected/ analysed:** In deep interviews and group interviews were conducted during 4 weeks, September/October 2014.

Women for in depth interviews were purposely selected reviewing the Curamericas-Guatemala data base. For each community were selected 4 women two who has used the Casa Materna and 2 who has not used the Casa Materna. We select them by age (the youngest, the oldest), number of births, etc. In order to have a good sample (Varied kind of participants). 19 in-depth interviews and 5 group interview



## Data Analysis

The survey data were analysed using Epi Info 7.1 and Stata 13. Quantitative data were analysed using descriptive statistics. Principal components analysis (PCA) was used to create an asset score for each household using 22 household assets according to standard techniques.<sup>7,8</sup> For the equity analyses, frequency distributions of the number of years of education of the mother and the distance of the mother's community from the nearest *Casa Materna* were utilized to establish terciles. The distribution of the mother's family's PCA asset score was used to develop quintiles. For education, the terciles were defined as follows: 0 years of education, 1-3 years, and 4 or more years (30%, 33%, and 37% of the respondents, respectively). Distance terciles were also defined: 0-<4km, 4-<8 km, and 8-15 km (34%, 33%, and 33% of the respondents, respectively). The percentage falling in each wealth quintile ranged from 19% in the 1<sup>st</sup> quintile to 21% in third.

Equity of health facility utilization was assessed by calculating the number of women in each equity tercile (or quintile) who gave birth in a facility divided by number of women in that group who had given birth during the year of the study. Confidence intervals were calculated using WIN-PEPI and EPI INFO 7.1.

In-depth interviews and group interviews were audio-recorded and independently transcribed and translated into Spanish, with the transcriptions reviewed by two field supervisors before analysis. The qualitative data were manually reviewed and inductively grouped and coded into categories. This process is referred to as descriptive content analysis, which involves identifying themes among the responses and locating the specific responses with these themes. The coding and interpretation were then checked collaboratively, and found to be consistent.

The quantitative and qualitative data were integrated at the interpretation stage and triangulated for congruence and complementarity.

**Ethical Clearance** The study protocol was approved by the National Committee for Ethics in Health, Ministry of Public Health and Social Welfare of Guatemala. All research participants provided written or verbal informed consent.

- **Dissemination activities:** On 25<sup>th</sup> March 2015 was developed a conference for all the health international organizations working in Guatemala, including other TRAction projects and also Health ministry of Guatemala. In order to share the results of the present investigation with the members of the participating communities, the Ministry of Health in Guatemala and organizations who are interested in the results, a Spanish version of the final report was developed.
- *Publications developed:* A publication draft was developed and waiting for publication.

## RESULTS OF ANALYSES

### Quantitative results

#### Demographic characteristics of study respondents

The demographic characteristics of the study respondents are presented in Table 2. In brief, the respondents' ethnicity is *Chuj* (99%), with a mean age of 25, and an average of 3 children. The mean level of education is 2.7 years. Only 14% of their families own a vehicle or motorcycle; most depend on local private minibus and bus services.

*Table 1 Demographic characteristics of partner communities compared to non-partner communities*

Demographic Characteristic	Partner Communities (n=189)	Non-Partner Communities (n=86)	P-value* (95% confidence)	All Respondents (n=275)
Mean age of mother interviewed (years)	25.3	25.0	0.934	25.2
Mean number persons in household	6.9	6.6	0.756	6.8
Mean number of children in household	3.4	3.0	0.120	3.2
Percentage living with spouse/partner	89.9	81.4	<b>0.049</b>	87.3
Percentage who speak <i>Chuj</i>	98.9	98.8	0.938	98.9
Percentage who speak Spanish	27.0	19.8	0.199	24.7
Percentage who are principally housewives	95.2	95.3	0.713	95.3
Percentage whose family received <i>remittances</i> in past 3 months	20.6	19.8	0.869	20.4
Percentage who reported food insecurity in past 6 months	21.7	22.1	0.941	21.8
Percentage whose family owns a vehicle or motorcycle	14.3	15.1	0.717	14.5
Mean number of years of education of mother	2.8	2.6	0.662	2.7
Mean PCA asset score of household	0.96	1.00	0.551	0.97
Mean distance mother's community from nearest <i>Casa Materna</i> (km)	4.1	8.3	<b>&lt;.01</b>	5.4

\*Comparing partner communities with non-partner communities

The characteristics of the population in the partner communities are similar to those in the non-partner communities except that non-partner communities are considerably further away from a *Casa Materna* (2). The mean distance of a respondent's community to the nearest *Casa Materna* is 4 km for those living in partner communities compared to 8 km for those living in non-partner communities ( $p < 0.01$ ). This was expected as the *Casas Maternas* are strategically located to be in proximity to their partner communities. In the non-partner communities, no women live in the closest tercile (0-4 km from the nearest *Casa Materna*), while 68% of the women live in the farthest tercile (8-15 km).

#### Utilization of Health Facility for Deliveries

Among the 275 women interviewed, 70% in the partner communities and 30% in the non-partner communities had delivered in a health facility between April 2013 and March 2014. Using data from women in the five partner communities who had participated in a 2012 survey of the broader program

area, and comparing the results for these same communities for 2014, the percentage of women giving birth in health facility deliveries increased from 32% to 63% (Table 3).

*Table 2 Utilization of health facilities (including Casas Maternas) for deliveries by community group and year (2012-2014)*

<b>Community group and data source</b>	<b>Percentage of deliveries taking place in a health facility</b>	<b>N</b>	<b>95% confidence interval</b>	<b>p-value*</b>
Women with a child younger than 2 years of age in partner communities participating in a January 2012 baseline household survey of the broader program area (this is a sub-sample of the total women surveyed. These women were living in 5 communities that were later designated as partner communities for the <i>Casa Materna</i> program.	32.0%	16/50	(20.2% - 45.8%)	
Women living in one of the same 5 partner communities who gave birth during the study period (April 2013-March 2014) who were interviewed in September 2014.	62.8%	27/43	(48.7% - 75.4%)	0.003
All women in the study area of 32 communities (21 partner communities and 11 non-partner communities who gave birth during the study period (April 2013-March 2014) who were interviewed in September 2014.	57.5%	158/275	(55.1% - 59.8%)	<0.001
Women in the 21 partner communities who gave birth during the study period (April 2013-March 2014) who were interviewed in September 2014.	69.8%	132/89	(65.4% - 74.0%)	<0.001
Women in the 11 non-partner communities who gave birth during the study period (April 2013-March 2014) who were interviewed in September 2014.	30.2%	26/86	(22.4% - 39.1%)	0.775

\*The p value for that row describes the level of statistical significance for the percentage in that same row with the baseline percentage for 2012 (in the first row)

The great majority of facility deliveries in the partner communities occurred in a *Casa Materna* (103/132, or 78.0%). In partner communities, 54% (103/189) of all deliveries occurred in a *Casa Materna* compared to 17% (15/86) in the non-partner communities (Table 4). The percentages of hospital and clinic deliveries in the partner communities (7% and 8%, respectively) were only marginally higher than in non-partner communities (6% and 7%).

*Table 3 Location deliveries*

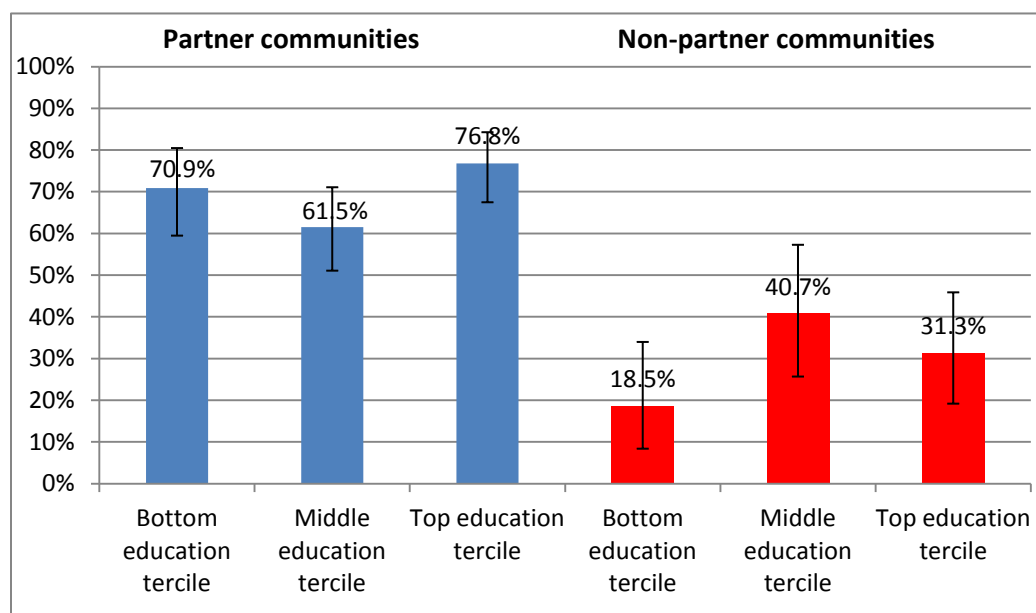
<b>Location of delivery</b>	<b>Partner communities (n=189)</b>	<b>Non-partner communities (n=86)</b>	<b>Total (n=275)</b>

	n	%	n	%	n	%
<b>Non-health facility deliveries</b>						
Home of interviewee or another person	56	29.6	60	69.8	116	42.1
In route in ambulance	1	0.5	0	0.0	1	0.4
Subtotal non-health facility deliveries	57	28.1	60	69.8	117	42.5
<b>Health facility deliveries</b>						
Hospital	13	6.9	5	5.8	18	6.5
MPHSW Health Center	14	7.4	6	7.0	20	7.3
Private clinic	2	1.1	0	0.0	2	0.7
Casa Materna Calhuitz	59	31.1	15	17.4	74	26.9
Casa Materna Santo Domingo	44	23.3	0	0.0	44	16.1
Sub-total health facility deliveries	132	69.8	26	30.2	158	57.5
	189	100.0	86	100.0	275	100.0

Equity of health facility utilization with respect to education, wealth quintile, and distance from a *Casa Materna*

Figure 5 shows the percentage of women delivering in a facility by level of education of the mother, wealth quintile for the mother's household, and distance from the closest health facility by partner and non-partner communities. There is no statistically significant difference in the percentage of health facility births by educational level for women in the partner communities, indicating that those with the lowest level of education were as likely to obtain a facility birth as those with higher levels. Although there was no statistically significant difference by education for facility births in the non-partner communities, there is a suggestion of increasing health facility utilization among those with more education.

Figure 3 Percentage of deliveries occurring in health facility by education tercile and by partner versus non-partner



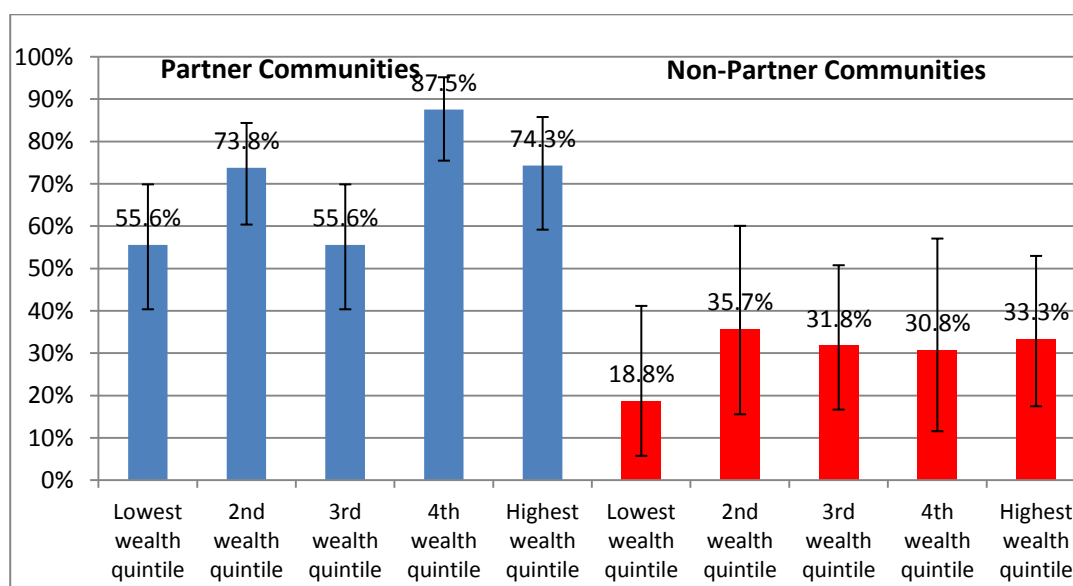
communities

Note: 95% confidence intervals shown.

The bottom education tercile is no education; the middle tercile is 1-3 years, and the top tercile is 4+years

Similar patterns were observed for the wealth quintiles (Figure 6), although in the partner communities there is a suggestion of a modest effect of increased utilization among women in only one of the wealthier quintiles, with the difference between the lowest and 4<sup>th</sup> quintile statistically significant ( $p < .01$ ). In the non-partner communities the lowest wealth quintile had a lower utilization of health facilities but the difference was not statistically significant.

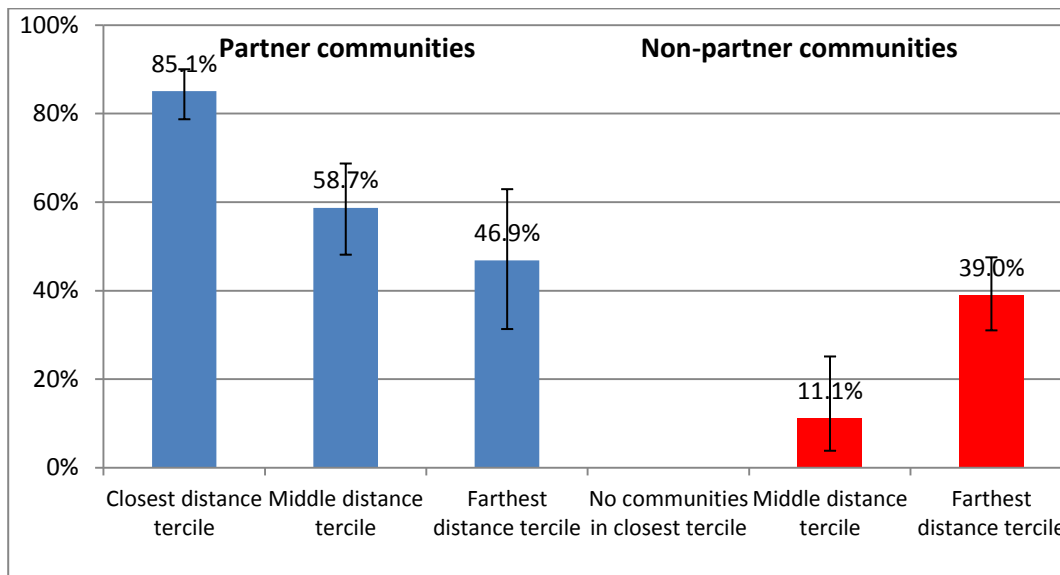
Figure 4 coverage of health facility deliveries by wealth quintile, partner versus non-partner communities



Note: 95% confidence intervals shown.

The findings regarding the effect of distance from the *Casa Materna* on birth location present a more complex picture. For all the partner communities, the greater the distance, the lower the facility delivery coverage rate (Figure 7). Among the non-partner communities, no women giving birth were within 3 km of a *Casa Materna*, and for the intermediate and most distant groups, delivery rates were actually higher among the most distant group.

Figure 5 Coverage of health facility deliveries by distance tercile and by partner versus non-partner communities

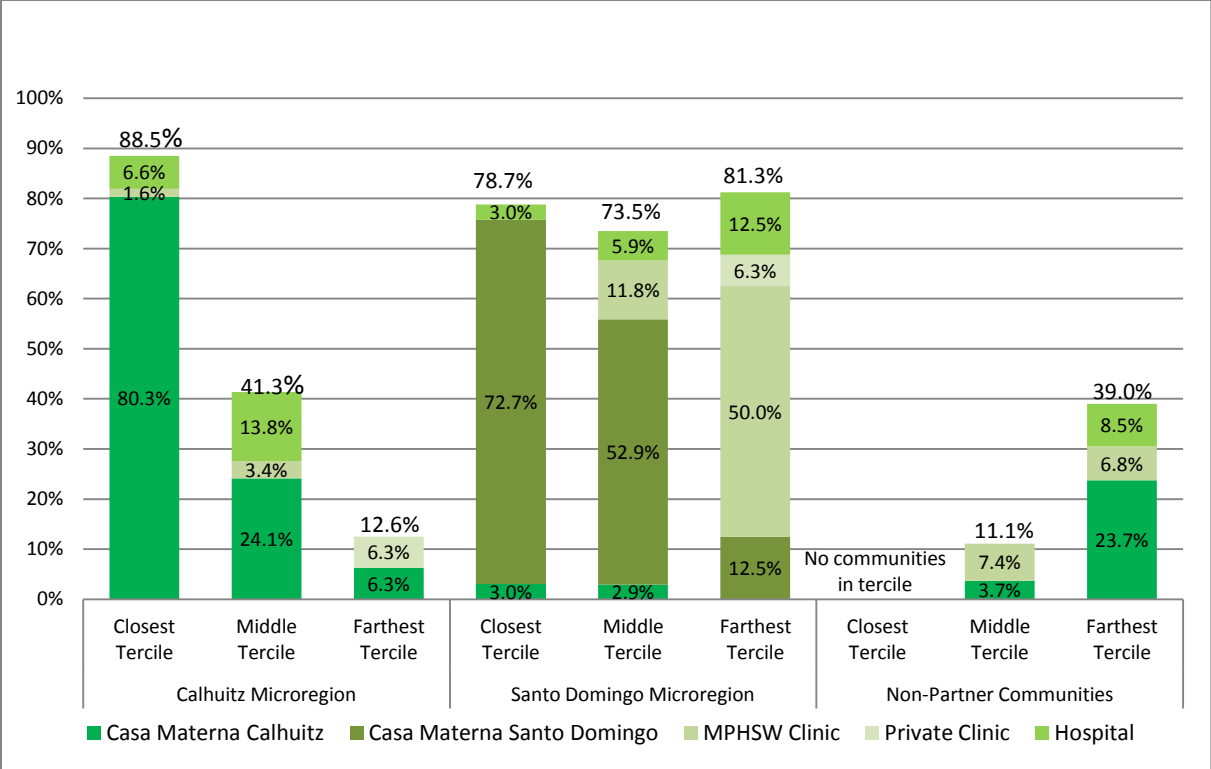


Note: 95% confidence intervals shown

Closest tercile is <4 km from the *Casa Materna*; middle tercile is 4-<8 km, and farthest tercile is 8+ km away

Further stratification of the distance data by partner community catchment area for the two *Casa Materna* and for the non-partner communities in which actual site of delivery was examined produced considerably different pictures for the three groups (Figure 8). In the Calhuitz area, where there were no other readily accessible facilities, both use of the *Casa Materna* and facility deliveries differed by distance to the *Casa Materna*. In Santo Domingo, a gradient was observed in the relationship between distance to the *Casa Materna* and its use, although the percentage of overall deliveries did not vary by distance since women in the most distant areas had access to a nearby higher-level government facility in a lowland adjacent municipality that was less than one hour away. In the non-partner communities, 24% of the deliveries in the most distant tercile occurred in the Calhuitz *Casa Materna*. In some of these communities (e.g., Chenen), there is strong support from the community leadership for births to take place in the Calhuitz *Casa Materna* even though it is more than one hour away. In contrast, in the Calhuitz partner communities, only 6% of the deliveries among residents of the farthest tercile occurred in the Calhuitz *Casa Materna* (Figure 6).

Figure 6 Percentage of health facility deliveries, by type of health facility, study area and distance from the nearest *Casa Materna*



Note: Closest tertile is <4 km from the *Casa Materna*; middle tertile is 4-<8 km, and farthest tertile is 8+ km away

**Qualitative Results**

For qualitative data from in-depth and group interviews, first order descriptive themes and second- and third- order analytic themes are summarized in Table 4 and the findings for the main topics are described in following sections.

*Table 4 Data for in-depth and group interviews*

Third order	Second order	First order
Decision about birth place	Influence of others on delivery location	Barrier: Too many people involved in the decision-making process Facilitator: The role of <i>Comadronas</i> Facilitator/barrier: The role of husband
	Cultural traditions	Barrier: Tradition supports giving birth at home Facilitator: The role of the <i>Comadrona</i>
	Previous birth experience	Facilitator/barrier: Effects of previous birth experiences on subsequent delivery locations
	Perception of distance	Barrier: <i>Casa Materna</i> perceived as being located far away Facilitator: <i>Casa Materna</i> perceived as being nearby
	Cost of childbirth	Barrier: Perceived high cost of facility birth compared with home birth Facilitator: Perceived low cost of <i>Casa Materna</i> as facility birth
Assessment of birth experience	Cultural traditions	Facilitator: <i>Comadrona</i> is part of the team during delivery process Facilitator: woman is attended in her own language and traditions
	Perceived quality of care	Barrier: Home perceived as safe place to give birth Facilitator: Home perceived as no safe place to give birth. Facilitator: <i>Casa Materna</i> perceived as providing high quality of care
Recommendations for improving care at the <i>Casa Materna</i>	Suggestion	Facilitator: To have more equipment

### Decision about birth place

Many people were identified as being involved in the process of decision making about the birthing place and the woman herself was generally not the final decision maker. People identified as playing an important role in making the final decision included: a) the *Comadrona*, who was found to be one of the best supporters of the *Casa Materna* and in motivating women to have facility deliveries, and b) the husband, who plays a complex role in the decision-making process. In some settings, the husband acted as a facilitator by supporting his wife in her decision to use the *Casa Materna*, while in others, the husband prohibited a facility delivery due to cultural traditions such as *machismo* (a cultural tradition that embraces the subjugation of women by men that is expressed in attitudes, behaviors, and decisions). In still other settings, the husband played a more neutral role and placed the decision making in someone else's hands, such as an elder female family member. Comments reflecting these findings were as follows:

*"When knew I was pregnant I told the Comadrona and she advised me to go to the Casa Materna and the entire all family accepted my decision..." (woman living in a partner community)*

*"Before I accepted the management of the pregnancy, I advised the woman and her family that she must go to the Casa Materna because there could be complications in childbirth..." (Comadrona, living in a partner community)*

*"My husband made the decision that I gave birth at home and said that I should not go elsewhere..." (woman living in a non-partner community)*



Other factors such as cultural tradition and previous experience play an important role in preventing use of the *Casa Materna*. For example:

*"I decided to give birth at home because I have three children and have experience, it is the custom to give birth at home..." (woman living in a non-partner community)*

Geographic distance to the *Casa Materna* was also found to be an influential factor affecting delivery location. The perceived far distance, as well as the availability and cost of transportation influenced the place of amongst some women. Some women reported that the *Casa Materna* was too far to travel to during labor, and travel at night or during the rainy season was also considered particularly difficult. Perception of distance in some cases was more important than actual distance, and some perceived that the *Casa Materna* was close to their community even when the community was more than 8 km from the *Casa Materna*.

*"I have no possibility to go to the Casa Materna because I have no money, it is far and transportation is expensive..." (woman living in a partner community)*

*"I went to the Casa Materna since not much money is spent because it is near my community..." (woman living in a non-partner community)*

#### Assessment of the childbirth experience

Informants reported that when a woman goes into labor, the first person to whom it is communicated is the *Comadrona*, who goes to the home and attends the woman if she is going to give birth at home or accompanies her to the *Casa Materna* with her husband and family members. In the partner communities, the *Comadrona* is considered as part of the team but is not formally a member of the staff of the *Casa Materna*.

*"When the labor pains started I told my husband and he called my Comadrona. My husband looked for transportation and we went to the Casa Materna..." (woman living in a partner community)*

*"In the Casa Materna take care according to woman's culture and bring quite understanding in comparison of a national hospital..." (Comadrona living in a partner community)*

Women who perceived that the *Casas Maternas* provide high quality care reported feeling more comfortable giving birth at a *Casa Materna*. Community leaders and *Comadronas* also reported feeling comfortable working with the *Casa Materna* staff because of the quality of care that they provide. Staff of the *Casa Materna* reported that the participation of the *Comadronas* during the delivery process was helpful and contributed to good outcomes.

*"I chose the Casa Materna to have a safe delivery and avoid any complications during delivery..." (woman living in a non-partner community)*

*“Our communities have benefited from the Casa Materna because now our women have a clean, safe place to give birth to our children...” (leader in a partner community)*

*“The Casa Materna has the necessary medicine to attend births, good attention from the nurses and they allow me to be with her during the labor...” (Comadrona in a partner community)*

### Recommendations for improvement

Respondents from both in-depth and group interviews agreed that the *Casas Maternas* provide a good quality of care. However, recommendations were made to provide the *Casas Maternas* with additional technical equipment to be able provide sonography.

## CHALLENGES AND LESSONS LEARNED

**Challenges or barriers encountered:** Our case study is a pilot study in a small population concerning the early utilization of a new approach to maternity care in an area where the level of maternal mortality is quite high. Our study would have benefitted from stronger baseline data regarding health facility utilization prior to the introduction of the *Casas Maternas*. We noted underutilization of facilities in the partner communities among women in the poorest wealth quintile compared to that of women in all the other wealth quintiles combined, though this difference was not statistically significant (although it was statistically significant when the lowest wealth quintile was compared with the 4<sup>th</sup>). But when combined with comments of some of the mothers regarding cost, especially cost of transportation, as a potential barrier to use of the *Casa Materna*, it could be that equity was not fully attained for these poorest of the poor and that the small numbers involved in the study did not allow for the statistical detection of this lack of equity. A final limitation is that, in the translation of interview questions and answers from Spanish to *Chuj* to back to Spanish and ultimately to English, some important meanings could have been lost, despite having bilingual Spanish/*Chuj* and Spanish/English staff translating.

**Changes in the initial protocol or research plan:** The biggest challenge held during the investigation was the changes made in the TRAction project team. Intensive work was done during 7 months in order to have the final objectives, research questions and fieldwork plan; all this work resulted in the IRB protocol approved by USAID and the Ministry of Public Health of Guatemala.

The objectives, research and sub-research questions approved within Milestones 1 and 2, were:

The objectives of the research were:

1. Determine equity in access to and use of maternal and child health services among women of reproductive age who live in the 32 *Chuj*-indigenous communities of the municipality of San Sebastian Coatan (SSC), Huehuetenango; around the *Casa Maternas*.
2. Identify the factors influencing women’s use of the *Casa Maternas* or other facilities for delivery, comparing the partner communities and non-partner communities of the *Casa Maternas*.

The case study research questions and sub questions were:

- A What has been the change in health facility deliveries and in other key maternal, neonatal and child health services in the partner communities of the Casa Maternas of the San Sebastian Coatán (SSC) Municipality relative to other communities in SSC that were included in Phase I of the Curamericas/Guatemala Child Survival Project? And to what degree have these changes been equitable within the Casa Materna partner communities? That is, were those who are the poorest, least educated and most distant within these communities just as or more likely to obtain a birth at the Casa Materna and to have improved outcomes as those who have more favorable socioeconomic characteristics?
  - A.1. What percent of women have given birth either in a Casa Materna or elsewhere in the past year used the following services, which are provided at the Casa Materna?
    - a. Four properly timed antenatal care checks;
    - b. Health facility delivery by a skilled birth attendant;
    - c. post-partum care within 48 hours of delivery; and,
    - d. Adoption of a modern method of contraception during the post-partum period.
  - A.2. Was the utilization of the Casa Maternas in both partner and non partner communities, geographically equitable, i.e. at least as high among women who lived furthest from the Casa Maternas as among those who lived closer?
  - A.3. Did women's educational level affect their use of the Casa Materna?
  - A.4. How did level of poverty of women in both the partner and non-partner communities influence use of the Casa Maternas?
- B What factors influence the use or not use of the Casa Materna in Calhuitz and Santo Domingo?
  - B.1. Why do some women use the Casa Materna?
  - B.2. Why do some women not use the Casa Materna? What are the main obstacles facing women to use the Casa Materna?
  - B.3. How does the implementation of the Calhuitz and Santo Domingo "Casa Materna" influences use?
  - B.4. What factors explain the difference in coverage of maternal/newborn health indicators achieved in partner and non-partner communities?
  - B.5. What could be changed to encourage more women to use the Casa Materna? (i.e. what are the community recommendations?)

However, after two changes in the TRAction project management and the enormous fieldwork carried out, the objective of the research was reduced to: The purpose of the present study was to examine whether the Casa Materna have contributed to increasing health facility deliveries in the 32 communities of the municipality of San Sebastian Coatan, what factors have influenced the use of the

Casa Materna by women in the communities and whether the Casa Materna improved equity regards to facility deliveries in the study region.

## RECOMMENDATIONS FOR APPLYING RESULTS

The findings from this case study provide strong evidence of a surprisingly high level of use of *Casa Maternas* in the study area. We do not have the capacity to give a definitive statement regarding why this new approach to maternity care in a challenging area is showing strong signs of acceptance. We suspect that it is a combination of factors, each of which together contributed – but it is perhaps possibly that one of these factors alone could have been responsible. These factors are:

- A high-quality of services is being provided in these *Casas Materna* – women are treated with respect, and the care is culturally appropriate while also of a good medical quality. One respondent observed, “In the past our children were born into garbage but now they are born into cleanliness.”
- These services are much closer than those provided at government facilities.
- *Comadronas* continue to play an important role in maternity care, and they seem to be enthusiastic in supporting the use of the *Casa Materna* for four reasons: (1) they are not losing any income by promoting the use of the *Casa Materna*, (2) they continue to play an important role in providing support to the mother and her family and participating the delivery itself, and (3) they do not suffer the risk of being blamed for any complication that might arise and (4) hopefully, they are beginning to realize that delivery in a *Casa Materna* is in the best interest of the mother and her child.
- The outreach portion of the program (visiting all homes for promotion of healthy behaviors and appropriate utilization of health facilities) has encouraged mothers.
- Community engagement and community participation in terms of construction and management has made the community a stakeholder and has encouraged utilization.

Access to government health services is limited for indigenous population living at rural isolated mountainous areas. The approach of the Casa Materna model as Curamericas Guatemala has implemented, shows promise for broader application in Guatemala and beyond.

## REMAINING QUESTIONS

The question remains regarding how to overcome the geographic barriers that exist to health facility utilization. Several options might be considered:

- For communities that are more than 8 km from a *Casa Materna*, consider a special approach to assuring prompt transport to a *Casa Materna* at the onset of labor
- Arrange for women in the communities to come and stay at the *Casa Materna* when she is at term and wait at the *Casa Materna* until labor begins.

- For the poorest women who live further away, some additional financial support may be needed to assure equitable access to a facility delivery.

## NEXT STEPS

We are currently executing follow-up research to deepen our understanding of the factors that influence women to use the Casa Maternas: a qualitative investigation of the role of the Comadronas (traditional birth attendants) who are integrated into the operation of the Casa Maternas and who, according to our Case Study results, often influence women to utilize the Casa Maternas; and a qualitative investigation of the role of the Comunicadoras (mother peer educators/Care Group Volunteers), who also encourage Casa Materna use. Also, it is important to note that the TRACtion Case Study is but a part of a much larger Operational Research (OR) effort we are executing in conjunction with our USAID-funded Child Survival Health Grants Programs (CSHGP) project which ends in September 2015. This OR is looking at the effectiveness of our integrated programming - of which the Casa Maternas are but a part - in attaining coverage of high-impact interventions and reducing maternal and child mortality. We expect this OR work to be completed by the end of 2015, and in January 2016 we plan to initiate a concerted outreach and dissemination effort both in Guatemala and in the U.S. that will include meetings with key stakeholders (especially the Ministry of Health and USAID); presentations at conferences (CORE, APHA, others); and articles to be published in peer-reviewed journals and/or disseminated through the "grey literature."