IMPROVING ESSENTIAL OBSTETRIC AND NEONATAL CARE IN COTOPAXI, ECUADOR: FINAL EVALUATION

September 2013

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IMPROVING ESSENTIAL OBSTETRIC AND NEONATAL CARE IN COTOPAXI, ECUADOR: FINAL EVALUATION

IMPROVING ESSENTIAL OBSTETRIC AND NEONATAL CARE IN COTOPAXI, ECUADOR: A COMPREHENSIVE FINAL EVALUATION OF A GRASSROOTS TO TERTIARY CARE COORDINATION IMPROVEMENT PROJECT

September 30, 2013

CSHGP Cooperative Agreement Number: GHS-A-00-09-00008-00

CONTENTS

ACRONYMS

AMTSL	Active Management of Third Stage of Labor
ANC	Antenatal Care
BCC	Behavior Change Communication
CATCH	Core Assessment Tool on Child Health
CHS	Center for Human Services
CHW	Community Health Worker
CSHGP	Child Survival and Health Grants Program
COMPAS	Parish Health Committee (in Spanish)
CONASA	National Council of Health of Ecuador (in Spanish)
DIP	Detailed Implementation Plan
EBAS	Basic Health Team (in Spanish)
ENC	Essential Newborn Care
EONC	Essential Obstetric Newborn Care
FE	Final Evaluation
HCI	Health Care Improvement Project
HHCC	Household to Hospital Continuum of Care
HIS	Health Information System
IEC	Information, Education and Communication
IESS	Institute of Social Security of Ecuador (in Spanish)
IRB	Institutional Review Board
KMC	Kangaroo Mother Care

KPC	Rapid Knowledge, Practices, and Coverage
LAC	Latin America and Caribbean Region
LBW	Low Birth Weight
LMGAI	Law of Free Maternity and Child Care (in Spanish)
MCHIP	Maternal and Child Health Integrated Program
MICC	Cotopaxi Indigenous Movement (in Spanish)
M&E	Monitoring & Evaluation
MMR	Maternal mortality rate
MNC	Maternal Neonatal Children
MNCH	Maternal and Neonatal Health Care
MNH	Maternal and Newborn Health
MOH	Ministry of Health
MOU	Memorandum of Understanding
MTE	Mid-Term Evaluation
NGO	Non-governmental Organization
NMR	Neonatal mortality rate
n.s.	Not statistically significant
OR	Operations Research
p	Probability value
PVO	Private Voluntary Organization
QA	Quality Assurance
QAP	Quality Assurance Project
QI	Quality Improvement
QOC	Quality of Care

SBCC	Social Behavior Change and Communication
SSC	Peasant Social Security (in Spanish)
TAP	Birth Assistant Community Worker
TBA	Traditional Birth Attendant
TV	Television
URC	University Research Co, LLC
USAID	United States Agency for International Development

Essential Obstetric and Nweborn Ccare Network, Cotopaxi, Ecuador (Photo: Mario Chavés)

Key Findings:

- **Improved household maternal best practices (exclusive breastfeeding, recognition of neonatal and postpartum danger signs, presentation of home complication referrals to a facility, and client satisfaction, among others),**
- **Increased postpartum visits within 2 days of birth, and**
- **Substantial decline in neonatal mortality, and**
- **The 2013 MOH assumption of the model for national scale up.**

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URC CHS

IMPROVING ESSENTIAL OBSTETRIC AND NEONATAL CARE IN COTOPAXI, ECUADOR: FINAL EVALUATION - Executive Summary

This project was funded by the U.S. Agency for International Development through the Child Survival and Health Grants Program.

September 2013

Evaluation, Purpose, and Evaluation Questions

The final evaluation (FE) of the Cotopaxi, Ecuador Essential Obstetric and Neonatal Care (EONC) project funded by USAID's Child Survival and Health Grants Program (CSHGP) GHS- A-00-09-00008-00 (September 30, 2009 to September 29, 2013) describes the project processes, their implementation and challenges, and their influence on improving EONC across the levels and continuum of care. The FE was tailored to address the interests and needs of the Ministry of Health (MOH), other in-country and USAID and USAID CSHGP stakeholders in Ecuador and the global community beyond. The evaluation questions were:

1. *To what extent did the project accomplish its strategic objective of improving more equitable access to, utilization of, and availability of a continuum of high-impact community- and facility-based maternal newborn services provided as part of a coordinated network of TBAs, health facilities and social organizations?*
2. *To what extent did the project achieve its objective to improve household maternal newborn best practices, including household knowledge, care-seeking and service utilization and self-reported behaviors?*
3. *To what extent was the project able to improve quality of maternal newborn care services provided at household, health center and hospital levels (by trained TBAs and skilled providers)?*
4. *To what extent was the project able to promote a favorable policy environment to increase the likelihood that project gains would be sustained and scaled up after project completion?*
5. *How well did the project achieve its central OR innovation of increasing coverage and quality of home- and facility-based early post-partum and post-natal care for mother and newborn?*

Project Background

The project attempted to establish a comprehensive, sustainable provincial-level network, coordinating disparate EONC services, strengthening linkages between the levels of care (community, sub health post, health post, health center and hospital) and related services, focussed on the 21 poorest,most Indigenous parishes in Cotopaxi with the specific objectives of:

1. Improving access to and use of care,
2. Improving knowledge and demand for evidence-based EONC;
3. Improving the quality of maternal and newborn care and best practi ces; and
4. Influencing the policy environment for coordination, expansion and sustaining project improvements.

FINAL EVALUATION EXECUTIVE SUMMARY

Evaluation Questions, Design, Methods, and Limitations

A mixed-methods evaluation using both quantitative and qualitative data was conducted. To provide a comprehensive final evaluation, the FE included:

1. Documentation: A profound review of project documents was conducted to confirm project implementation and/or revision of planned activities and understand the environment (political, social, health, etc.) in which the project was conducted to interpret the effects of the project on the project outcomes, including strategies and policies;

2. Quantitative Data: A review and statistical analysis of project documents that confirm project implementation and/or revision of planned activities to interpret the effects of the project on the project outcomes. A review and extensive statistical analysis of quantitative baseline and end line household KPC surveys and project monitoring and evaluation data was conducted to assess the effectiveness of the overall project strategy;;

3. Qualitative Data: In-depth key informant interviews were conducted with the stakeholders, including project staff, USAID, MOH office Social Security authorities, local NGOs and community-based organizations, district health teams, community- and facility-based health workers, community members, community leaders, and mothers. These stakeholders include: parish micro-network participants, including skilled providers, TBAs, others; Provincial health care providers/EONC (complete and basic) and communications teams; Provincial and central level MOH health care representatives/directors; and the USAID/Quito representative. Visits were made to a county hospital, a kangaroo mother care program and a parish level health care center and hospital in Cotopaxi, and a parish micro-network team meeting to observe the activities supported by the project and better understand and describe the project environment.

The MOH Health Information System (HIS) has been well established over time in collaboration with URC-CHS as part of the previous USAID supported projects. Project qualitative and quantitative community and facility baseline information helped guide creation of simple and feasible data collection systems for essential project measures not currently captured in MOH HIS. The project avoided redundant information collection and developed new indicators to assess community-level EONC in a manner responsive to MOH priorities; these data provide critical community-based outcomes (provision of early postnatal and postpartum care and community-based referral to a higher level of care) are not captured by the MOH HIS. The project also used innovative mechanisms to assess the quality of TBA services including observation of simulated TBA antenatal and post-partum care and occasional direct observation of patient care. Project staff worked closely with community organizations, provincial MOH, parish, county and other partners to support and strengthen a coordinated provincial, county, and parish maternal and newborn mortality surveillance system linked to local and provincial-levels to facilitate local review and action. CHS engaged an experienced local research organization to conduct baseline and endline household surveys were conducted measure three sets of indicators (with overlap) to assess the project's influence on 1) Project-wide indicators; 2) Project Operations research indicators; and 3.USAID Rapid CATCH Indicators (except malaria and anthropometric data, which were excluded with USAID permission). The KPC household survey tool incorporated and adapted items from three independent survey tools:

The household survey has a number of limitations. The baseline survey was designed to assess the intervention and similar counties in Cotopaxi Province. The baseline and endline sampling procedures were not identical, and erroneously including urban townships in both the baseline and endline surveys. Consequently, significant differences in various socio-demographic variables associated with access to and utilization of care, among others (such as survival), were observed between the baseline and endline samples. The endline survey also under-representing the single county with the longest duration of project implementation, which could underestimate the estimates of project effect, assuming that greater effect would be observed where the intervention had the greatest duration of implementation. All area counties may have also been exposed to the mass media communications component of the intervention, thus comparisons of the baseline with endline knowledge may be more appropriate than contemporaneous comparisons between parishes that were and were not included in the project and EONC micro-networks. Differences in baseline and endline sample may merit statistical control through regression or sample weighting techniques to adjust for these differences.

Data collection for some M&E indicators encountered problems. Referral and receipt of care for referrals are key indicators but the M&E information is incomplete and unreliable. Impact data were only available for newborn mortality rates. The HIS QI data on antenatal, labor and delivery, postpartum and neonatal care for complications are limited to the relatively few cases of complications; with small numbers and random fluctuation, the provincial data are insufficiently robust to make conclusions about management of obstetric and neonatal complications. The HIS indicator for essential newborn care does not accurately report compliance with best practices as the norms inadvertently

recommended a specific brand of medication for newborn ocular care that has been unavailable for a number of years, while suitable substitutes have been available and used. However, some facilities report compliance with this indicator literally while others do so figuratively. Brand recommendation is now being eliminated to support future accurate reporting.

In consideration of the methodologic limitations of the household survey and monitoring and evaluation data, the evaluator selected and presents the most relevant of the quantitative comparisons for each the outcome measure in the main body of the report; the source of data and type of comparison is specified for each result presented. (The full analyses are presented in a report Annex).

Findings and Conclusions

The documents reviewed, discussions with and presentations from key stakeholders and project staff with focused inquiry about the OR achievements and the project KPC and M&E data the evaluator analyzed for this report confirm the improvements observed during the project period are impressive: the project successfully achieved its central OR innovation of increasing coverage and quality of home- and facility-based early post-partum care for mother and newborn. In the relatively short implementation time frame (1 year in 3 counties and 2 years in Pujilí), the project has achieved profound effects in improving critical coverage, knowledge and quality of care. These accomplishments occurred by establishing a sustainable, complex network for Essential Obstetric and Newborn Care, an enormous feat that has coordinated care across providers, levels and agencies in a manner that apriori would be difficult to initially comprehend. Agencies that once worked in competition now work in partnership to the benefit of women and their newborns. For example, if an ambulance is not available at an MOH health center, that site now contacts and successfully coordinates the availability of the ambulance for the referral with the IESS or other private facilities. Taking three years to establish this network and adaptation of quality improvement methods to encompass all levels of care, from community to hospital, has produced this impressive coordinated system of care. The network processes have, in its relative short implementation period, improved numerous outcomes (access and coverage, knowledge and quality of care), and have produced a demonstrable impact on improving newborn survival.

The key accomplishments of the project are:

- The project Increased its principal outcome of postpartum and postnatal visits within 2 days of birth for the four vulnerable, marginalized intervention counties and Cotopaxi Province, thus improving equitable access to, utilization of, and availability of this critically important care, focused on a time during which most neonatal mortality occurs, through a continuum of high-impact community- and facility-based maternal newborn services through a coordinated network of TBAs, health facilities and social organizations.
- The project also achieved its objective to improve numerous household maternal newborn best practices, including exclusive breastfeeding, recognition of postpartum and newborn MN danger signs, knowledge of newborn best practices, presentation of referral for complications from home to facility and satisfaction with services.
- There was extensive and systematic improvement in adherence with maternal and newborn care evidence base standards and TBA knowledge and skills observed at the household and facility levels.
- The EONC network project was extremely successful in generating interest and promoting a favorable policy environment, ensuring that the project accomplishments will be sustained and scaled up. The Ministry of Public Health has created a national policy and dedicated budget, and assumed responsibility for the expansion, implementation and sustenance of the project's EONC Network model to the entire country, as specified in the MOH 2013 Norms).

The global community may adapt the key components of the EONC Network model achievements in their efforts to create coordinated, comprehensive networks to improve KAP, QOC and neonatal survival. These components include:

- coordination and networking across all levels,
- rapid/short courses to improve quality of care and continuous quality improvement systems,
- improved clinical knowledge to manage complications,
- use of culturally appropriate communication, and management of health care provision across all levels of care.
- quality of services was greatly improved in project sites.

The Cotopaxi, Ecuador Essential Obstetric and Neonatal Care (EONC) Project] in Cotopaxi, Ecuador is supported by the American people through the United States Agency for International Development (USAID) through its Child Survival and Health Grants Program. The [Project name] is managed by Center for Human Services under Cooperative Agreement No. GHS-A-00-09-00008-00. The views expressed in this material do not necessarily reflect the views of USAID or the United States Government.

For more information about Cotopaxi, Ecuador Essential Obstetric and Neonatal Care (EONC) Project, visit: www.urc-chs.com

September, 2013

EVALUATION PURPOSE AND EVALUATION QUESTIONS

EVALUATION PURPOSE

This document presents the final performance evaluation (FE) for the Cotopaxi, Ecuador Essential Obstetric and Neonatal Care (EONC) project funded by USAID's Child Survival and Health Grants Program (CSHGP) GHS- A-00-09-00008-00 from September 30, 2009 to September 29, 2013 in Cotopaxi, Ecuador. USAID's CSHGP supports community-oriented projects implemented by U.S. private voluntary organizations (PVOs) and nongovernmental organizations (NGOs) and their local partners. The purpose of this program was to contribute to advancing the health system strengthening goals of Ministries of Health (MOH) toward achieving sustained improvements in child survival and health outcomes, particularly among vulnerable populations by supporting innovative, integrated community-oriented programming of private voluntary organizations and non-governmental organizations (PVOs/NGOs) and their in-country partners. USAID reviewed the draft scope of work (SOW) for this final evaluation (FE) and approved the final evaluator. Nancy L. Sloan, DrPH, an epidemiologist known for her work in obstetric and neonatal care, child survival and nutrition, who has periodically conducted projects in Ecuador, Latin America and the Caribbean (LAC), and globally for over 30 years, was hired with project funds by Center for Human Services (CHS) as an independent consultant to serve as the FE team leader. The evaluation was conducted in a manner protective of the evaluator's independence and neutrality. USAID approved the evaluator, reviewed and approved the FE SOW. The draft report was directly submitted to USAID simultaneously by the evaluator at the time they were provided to the grantee.

The CSHGP project in Ecuador focused on reducing maternal and newborn mortality rates through increasing access to and quality of Essential Obstetric and Neonatal Care (EONC) services in the Cotopaxi province of Ecuador. Cotopaxi Province is located in a mountainous region in the central Ecuadorian highlands. The overarching project objective was to improve EONC through building a provincial-level network of coordinated maternal newborn health services, strengthening linkages between levels of care (community, primary, hospital) and along the continuum of antenatal, intrapartum and post-partum care. The project sought to specifically strengthen coverage, utilization, coordination and quality of community and facility-based high impact, evidence-based services for mothers and newborns, with community services delivered by TBAs closely supported by health center staff and community organizations. Increased skilled care coverage was an important overall objective for the project. The primary aim of the final evaluation is to describe the processes implemented, their influence on coverage, utilization, coordination of EONC across the levels and continuum of care, identifying the projects effective components and strategies that might be used to overcome barriers and further advance the interventions used to improve EONC.

The FE provided an opportunity for all project stakeholders to take stock of accomplishments to date and to present the views of beneficiaries at all levels, including mothers and caregivers, other community members and opinion leaders, health workers, health system administrators, local partners, other organizations, and donors. The FE Report is intended for use by the following audiences as a source of evidence to help inform decisions about future program designs and policies:

- In-country partners at national, regional, and local levels, including the Ecuador MOH and other relevant ministries, district and provincial health teams, Social Security Administration, relevant professional associations, local organizations, and communities in project areas).

- USAID (CSHGP, Global Health Bureau, USAID Mission in Ecuador and other CSHGP grantees).

- The international global health community.

EVALUATION QUESTIONS

The evaluation questions are:

1. To what extent did the project accomplish its strategic objective of improving more equitable access to, utilization of, and availability of a continuum of high-impact community- and facility-based maternal newborn services provided as part of a coordinated network of TBAs, health facilities and social organizations??

    a. How effective was the project in creating and sustaining: i) parish-level EONC "micro-networks" of community, primary health care providers and representatives; and ii) county-level networks of community, primary and hospital services?

    b. To what extent was the project able to strengthen linkages and consistent communication between parish health centers and TBA's and to strengthen referral processes between TBAs, parish health centers, and country and provincial hospitals?

    c. Is there any qualitative or other evidence that the project's "equity strategy" of targeting services to the most vulnerable parishes in the Cotopaxi region improved access, utilization, and/or quality of home- and facility-based care (including cultural responsiveness of services) for targeted vulnerable beneficiaries (parishes with > 50% extreme poverty or > 40% indigenous Indians)?

2. To what extent did the project achieve its objective to improve household maternal newborn best practices, including household knowledge, care-seeking and service utilization and self-reported behaviors?

    a. What were the challenges encountered and strategies employed by the project to improve household best practices (e.g. communications activities (jingles, etc); TBA capacity-building for counseling, etc)?

3. To what extent was the project able to improve quality of maternal newborn care services provided at household, health center and hospital levels (by trained TBAs and skilled providers)?

    a. What challenges did the project face and what strategies did the project use to try to continuously improve and monitor quality of TBA-provided home-based services and how effective were the strategies used?

    b. What were the main challenges encountered and strategies used to improve quality in health centers and hospitals and what were the areas of greatest and least gain based on project monitoring data, and why in the opinion of the evaluator?

4. To what extent was the project able to promote a favorable policy environment to increase the likelihood that project gains would be sustained and scaled up after project completion?

    a. What were strategies employed by the project to create a favorable policy environment including alignment with national and regional priorities and strategies and collaboration with Ministry of Health, Social Security, private partners and other stakeholders in the Cotopaxi region and at national level?

    b. To what extent was the project able to align its strategic approaches and interventions with existing systems, policies and national goals, so as to optimize national and local capacity to transform project innovations into sustainable policies and programs?

    c. Which elements of the project are most likely to be sustained or expanded and why and how?

5. How well did the project achieve its central OR innovation of increasing coverage and quality of home- and facility-based early post-partum and post-natal care for mother and newborn?

    a. What are stakeholder perspectives on the OR implementation, and how likely is it that the OR study will affect capacity, practices, and policy in Ecuador?

For each question, the evaluation assessed what were the main challenges to implementing the project interventions and achieving results, and the specific strategies employed by the project to overcome them. The FE questions were tailored to address the interests and needs of the MOH, other in-country and USAID stakeholders, as per the review and comments of the Ecuador MOH, the USAID Mission in Ecuador and the USAID CSHGP.

PROJECT BACKGROUND

PROJECT AND OR DESIGN

Despite the national average improvements in health care access and utilization in Ecuador, inequities persist with significant disadvantage among rural, less educated and Indigenous groups. At the inception of this project, the province had 384,500 inhabitants, of which 67% were rural, 28% were Indigenous, and 90% were poor with little access to and utilization of evidence-based maternal newborn services. The province includes 7 counties and 38 rural parishes. There are ~270 TBAs in Cotopaxi and almost all rural communities there are served by TBAs. In 2008, fewer than 40% of Indigenous women delivered in a health care facility compared with more than 75% of Mestizo (non-Indian) women. The provincial neonatal mortality rate (NMR) was 7.8/1,000, which was thought to largely underestimate the rural indigenous NMR. The last maternal and child health national survey (ENDEMAIN 2004) showed, for Mestizo (non-Indigenous) and rural Indigenous women, respectively, the use of antenatal care (ANC) was 86.8% and 61.5%; skilled delivery attendance was 80.2% and 30.1%; post-partum care was 37.7% and 15.4%. The results from the project's baseline KPC survey in Cotopaxi, are consistent: 77% of Mestizo and 49% of Indigenous mothers received ≥4 ANC visits; 89% of Mestizo and 36% of Indigenous mothers delivered in a health care facility. Part of this discrepancy was due to the public health care system preferential orientation of providing care to the larger urban populations through hospitals in provincial capital and county. At the parish level, the Ministry of Health (MOH) and the Social Security Institute (IESS) offered ambulatory care through health centers that operate during the daytime that are closed at nights and on weekends. Much of the Indigenous population resides in rural parishes beyond the parish town, and they disproportionately received maternal and newborn health care (MNHC) from traditional birth attendants (TBAs), traditional healers and family members. There was little or no coordination of essential services between the public or other health care institutions. In 2009, the four levels providing essential MNHC, TBA community care, parish ambulatory health centers, county hospitals and the provincial hospital generally worked in isolation with little or no coordination with private providers, posing great challenges to an effective network of continuum of care with functioning referral mechanisms.

Table 1: Project Population

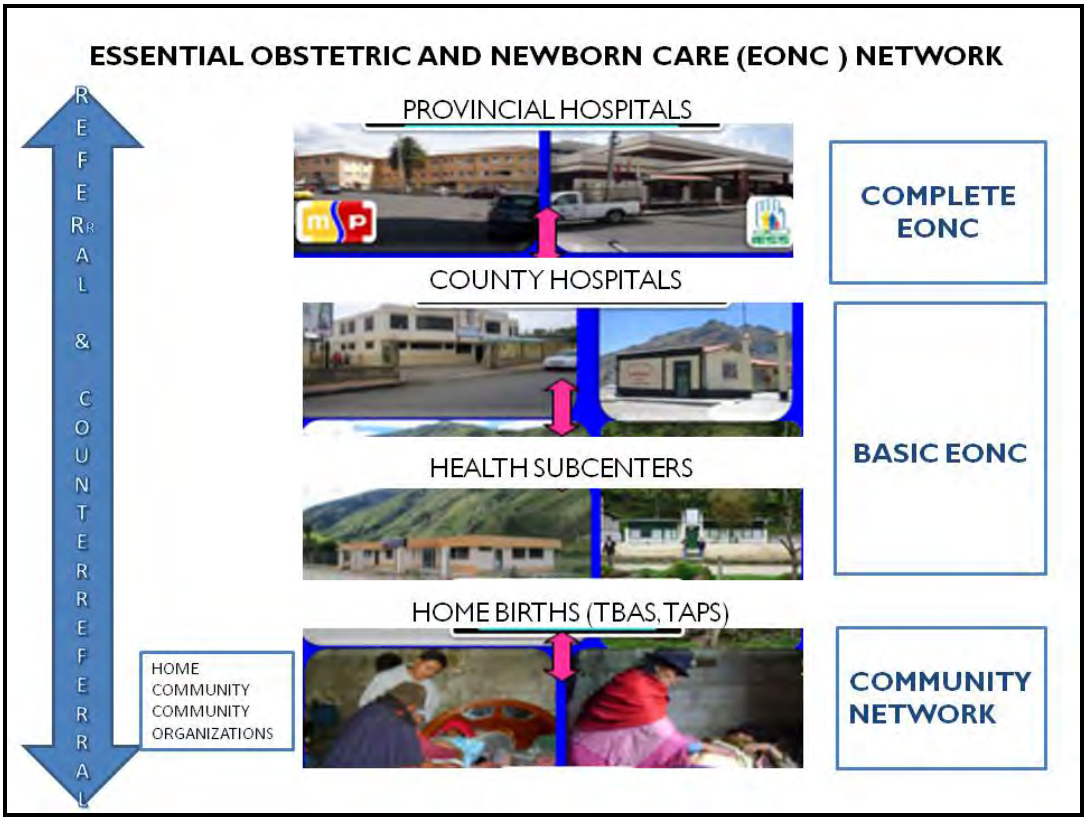
Beneficiaries*	Total
Total Population	172,904
Total Neonates	2812
Infants aged 0–11 Months	4161
Children aged <5 Years	20748
Women of Reproductive Age (15–49 years)	42654
Total Beneficiaries	67564
Expected Pregnancies	5202
Community Health Workers or Volunteers (CHWs), Disaggregated by Sex	TBA: F=207 M=32 TAPs: F=95 M=39
Health Facilities (Hospital to Sub Health Post)	15 Health Centers, 4 Primary Hospitals, 1 General Hospital, 16 Social Security Health Centers
Community-Based Structures (e.g., Village Development Committees [VDCs])	Not available

Source: Population and Household Census-INEC 2010, Annual Births & Deaths INEC 2011, Population Projections INEC-MSP 2013.

The CHSPG project, initiated in September 2009, extends the collaborative work of the MOH URC-CHS in the USAID supported GAP and HCI projects to overcome the geographic, transport and financial, cultural gaps at the foundation of the disparities of health care for the rural Indigenous population of Ecuador, through a novel approach to create and ensure a coordinated, efficient and effective continuum of high-impact MNH care from home to hospital. The central project innovation was to develop an integrated network of provincial Essential Obstetric Neonatal Care (EONC) services in Cotopaxi province among TBAs, community organizations, MOH, IESS, and private organizations to create an efficient, effective collaborative continuum of care that integrates community, home, and facility-based evidence-based services to prevent and manage the leading causes of maternal and newborn mortality. Parish health teams (CONPAS) were supported to meet regularly review and resolve problems in health care delivery and to advance the coordination, access to and quality of community and facility MNHC. Most maternal and infant deaths occur during labor, in the immediate post-partum period and during the first week after birth. Therefore, parish level teams were taught to use QI methods adapted for community-based implementation to measure and strengthen early post-partum care at and referral from the home. Parish health teams also were encouraged to meet with clients to address key barriers to referral and prompt care seeking. The project was implemented to increase the availability, acceptability and use of high impact EONC through community-based care, by improving referrals of mothers and newborns exhibiting signs of complications, promoting and scaling up coordination of providers and institutions from the MOH and IESS parish-level health centers to encompass county and provincial institutions as well as private providers. The project also brought local parish and municipal government representatives to authorize and support improving access to, and acceptability and use of health care based on various national laws that mandate coordination of and care provision by the public health care system.

The project assumed an enormous task, the coordination of disparate (Ministry of Health, Social Security, private providers and non-governmental organization) health services and potential resources to ensure the provision, utilization and coordination of high quality culturally sensitive and acceptable essential obstetric and newborn care across the continuum of all levels of care and types of providers. The project objective was to establish a comprehensive, sustainable provincial-level network of coordinated maternal newborn health services to strengthen both the linkages between the levels of care (community, sub health post, health post, health center and hospital; Figure 1) and to improve the quality of prenatal, intra- and postpartum and postnatal care to improve practices from the household through the hospital. In so doing, the project sought to increase skilled care coverage and strengthen the utilization, coordination and quality of community and facility-based high impact, evidence-based services for mothers and newborns, with community services delivered by TBAs supported by health center staff and community organizations.

Figure 1: Innovation: Coordinated Network Strategy



The project's detailed implementation plan specified its goals, objectives, intended results and intervention mechanisms in a manner that facilitated both project implementation and evaluation. Table 2 describes the extensive project activities implemented to develop a establish a coordinated and sustainable network linking community-based providers and health facilities to provide quality EONC services, increase community access to, demand for, and use of EONC network services, monitor the impact of evidence based EONC services, train and integrate TBAs into the network to improve their skills to identify maternal and newborn danger signs and risk factors and effectively refer them to facility skilled care, coordinate activities among TBAs, mobile community health teams, facilities providing services, community leaders, and NGOs working at the community level, strengthen the cultural sensitivity and acceptability of health facility services, and to strengthen the capacity of health facilities to offer technical assistance to institutionalize quality improvement methods that increase the quality and availability of EONC. In so doing, the project experiences, results and lessons learned have enriched and strengthened various MOH and other health care policies, particularly regarding the roles of TBAs and community agents in the public health system, how best to coordinate health care institutions, the role of evidence-based EONC in reducing maternal and newborn mortality, and on the mechanism to institutionalize continuous quality improvement.

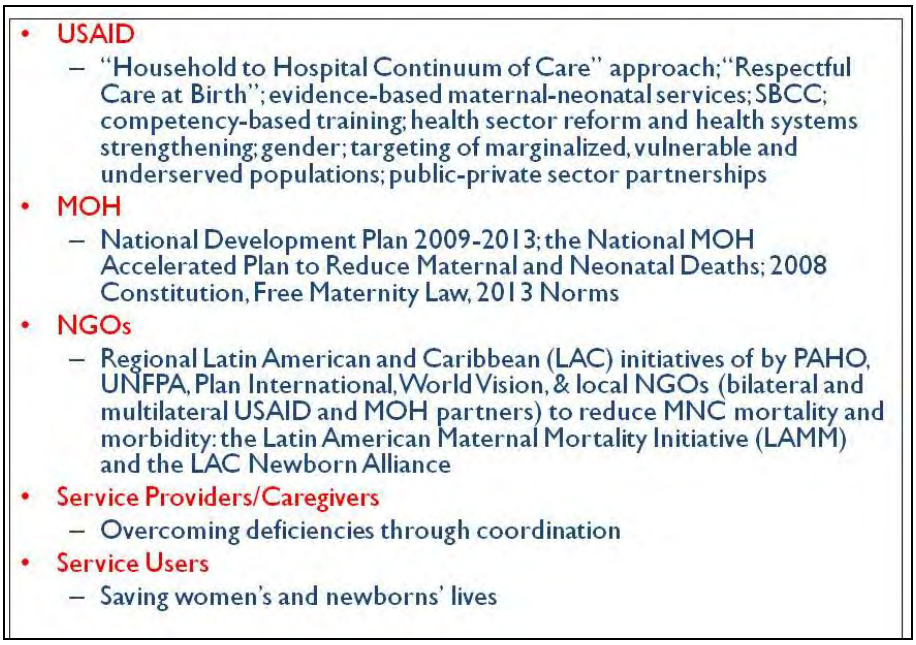
Table 2: Project Results Framework, including Strategic Objectives and Results:

Goal/Impact	To reduce maternal and newborn mortality and morbidity in Cotopaxi province			
Strategic Objective	Improved household health promotion practices and utilization of a continuum of high-impact community- and facility-based maternal newborn services provided as part of a coordinated network of CHW's, health facilities and social organizations.			
	1	**2**	**3**	**4**
Results/ Outcomes	Increase availability/access to a coordinated continuum of high-impact maternal newborn care provided as part of a network of community and facility services	Improve knowledge/ demand for evidence-based community and facility MNC services, including improved household health promotion practices.	Improve quality of MNC services provided as part of a coordinated network of CHWs and facilities	Improve policy environment for coordination among community health workers, health care institutions, and community /social organizations
Mechanisms	Strengthen community-based high-impact MNC services, coordinating TBAs, health centers, EBAS Develop/strengthen communication and referral mechanisms between levels of care (community, primary care and reference) Improve relationship between health facility personnel and CHWs/TBAs Actively involve community organizations	Communication and behavior change activities Strengthen counseling activities both at facilities and at home, by skilled providers and trained CHWs/TBAs Improve cultural responsiveness of institutional health services Disseminate citizens' rights to quality health care Develop mechanisms for exercising rights	Train TBAs for basic EONC skills Design/implement supervision and QI mechanisms for TBAs Strengthen EONC knowledge/skills of health workers Design/implement supervision and QI mechanisms for facilities Organize EONC network by designated intervention packages by level of care Design/implement community /users participation in overseeing QI	Promote a provincial EONC network of community and facility-based services Develop a subsystem for surveillance and analysis of maternal/newborn health Strengthen county health committees and LMGAI Disseminate legal framework favorable to health network

Partnerships/Collaboration:

The project was conducted collaboratively and was highly aligned with in-country partners at national, regional, and local levels, including the MOH, the Social Security Institute, the Peasant Social Security Program, the Zumbahua Program of the Claudio Benatti Foundation, various NGOs, district and provincial health teams, local organizations, and communities in project areas. While the USAID Mission in Ecuador is no longer directly involved in the arena of health, the project was continuously aligned with USAID (CSHGP, Global Health Bureau, USAID Mission in Ecuador). Figure 2 depicts the project partnerships and alignment of strategies. These partnerships produced profound advances in policy, health systems coordination, communications and EONC availability and quality including: the MOH official signing of a Letter of Understanding and appointment of the Division of Norms to coordinate with CHS in project implementation;. the Provincial Cotopaxi MOH Director appointment of a team of professionals for ongoing coordination with CHS in project implementation including holding regular semi-monthly meetings with the local MOH team; coordination with MOH facility staff (~419 professional staff in the provincial hospital, five county hospitals and 22 health centers); coordination with Social Security (IESS) facility staff (35 professional staff of the IESS provincial hospital and 29 staff in 19 health centers of the Peasant Social Security program in Cotopaxi); coordination with community organizations and agents including 204 Traditional Birth Attendants; 134 community-based Primary Health Workers (TAPs); 5 Emergency Transport Committees and 8 Community Health Committees (CHCs); and local NGOs including the Zumbahua hospital of the Claudio Benatti Foundation; World Vision PDA Guangaje Program; Plan International; Populorum Progressio Foundation; Latacunga Radio; Sigchos Municipal Radio, Runatacuyay Radio; San Luis de Pambil Radio; Ecos del Pueblo Radio; Saquisili Radio; San Miguel de Salcedo Radio.

Figure 2: Project Partnerships and Alignment



EVALUATION METHODS AND LIMITATIONS

A mixed-methods evaluation using both quantitative and qualitative data was conducted. To provide a comprehensive final evaluation, the FE included:

1. Documentation: A review of critical background documentation (DIP, mid-term evaluation, other key documents, Annex II),

2. Quantitative Data: A review and statistical analysis of project documents that confirm project implementation and/or revision of planned activities to interpret the effects of the project on the project outcomes (Annex XIX);

3. Qualitative Data: Conversations with CHS staff in Quito and Cotopaxi responsible for the implementation, monitoring and evaluation of the project (Annex XI).

Documentation

A profound review of project documents was conducted to confirm project implementation and/or revision of planned activities and understand the environment (political, social, health, etc.) in which the project was conducted to interpret the effects of the project on the project outcomes, including strategies and policies. The documents reviewed are specified in Annex II.

Quantitative Data

A review and extensive statistical analysis of quantitative baseline and end line household KPC surveys and project monitoring and evaluation data was conducted to assess the effectiveness of the overall project strategy. This review and analysis was designed to:

a. Assess improvement in access to care indicators e.g. % of births attended institutionally or by micro-network traditional birth attendants (TBAs) and improvement in use of services, e.g. % of newborns receiving institutional or micro-network TBAs post-natal care within 48 hours and within 7 days, % of mothers of children 0-23 months old who, in the past (Table 2, Result/Outcome 1);
b. Assess improvement in women's knowledge and practice, e.g. % of mothers of children 0-23 months old who, in the past year, initiated breastfeeding within an hour of delivery, exclusively breastfed, can name ≥2 pregnancy danger signs, ≥2 neonatal danger signs, and improvement in TBA's knowledge and practices, e.g. % able to name ≥2 danger signs of pregnancy, % of home visit essential early postpartum skills demonstrated via simulation (Table 2, Result/Outcome 2)
c. Assess improvement in the quality of care (QOC), e.g., institutional (Basic Hospital and Health Center) QOC, % vaginal deliveries received active management of the third stage of labor (AMTSL), monitored progress of labor and delivery (L&D) using the partogram, provided corticosteroids for fetal lung maturation for threatened preterm delivery); and
d. Describe changes in impact indicators: (Maternal Mortality Ratio, Maternal Mortality Rate, Stillbirth, Pre-discharge neonatal mortality rate (NMR).

Qualitative Data:

In-depth qualitative interviews, question and answer sessions after presentations by project implementers and observation of network meetings and clinical care were conducted in Quito and Cotopaxi with stakeholders and project implementers to complement analysis of quantitative secondary data (described above) to better understand and describe the project environment and its implementation, including group characteristics and functioning. The qualitative assessments provide information on stakeholder, partner and implementers including care givers, and beneficiaries (women's) opinions on the importance of the project; the community's perspective of the project; the process of project implementation; and how the project addressed evolving contextual factors (e.g., changes in government/MOH); and lessons learned for future activities.

Key informant interviews were conducted with the stakeholders, including project staff, USAID, MOH office Social Security authorities, local NGOs and community-based organizations, district health teams, community- and facility-based health workers, community members, community leaders, and mothers. Specifically, these stakeholders include: parish micro-network participants, including skilled providers, TBAs, others ; Provincial health care providers/EONC (complete and basic) and communications teams; Provincial and central level MOH health care representatives/directors; and the USAID/Quito representative. Visits were made to a county hospital, a kangaroo mother care program and a parish level health care center and hospital in Cotopaxi, and a parish micro-network team meeting to observe the activities supported by the project and better understand and describe the project environment. (See Annex XI.)

Data Quality and Use

The project baseline, mid-term and endline assessments and M&E data as well as MOH Health Information System (HIS) quantitative data are generally high quality. The MOH HIS has been well established over time in collaboration with URC-CHS as part of the previous USAID supported QAP and HCI projects. Qualitative and quantitative community and facility baseline information helped guide creation of simple and feasible data collection systems for essential project measures not currently captured in MOH HIS. The project carefully avoided duplication of a parallel (redundant) information system. New indicators to assess community-level EONC were created and systematically collected in a manner responsive to MOH mid and long-term priorities for sustainability at community and systems level by the project from its inception in each county, as data for these critical community-based outcomes (provision of early postnatal and postpartum care and community-based referral to a higher level of care) is not captured by the MOH Health Information System. The project also used innovative mechanisms to assess the quality of TBA services that simultaneously protect patient privacy and confidentiality, measured on a quarterly basis through observation of simulated TBA antenatal and post-partum care, with only occasional direct observation of patient care. Project staff worked closely with community organizations, provincial MOH, parish, county and other partners to support and strengthen a coordinated provincial, county, and parish maternal and newborn mortality surveillance system linked to local and provincial-levels to facilitate local review and action.

Baseline and Endline Household Surveys

CHS engaged CEPAR, an experienced local research organization, to conduct baseline and endline household surveys were conducted measure three sets of indicators (with overlap) to assess the project's influence on 1) Project-wide indicators; 2) Project Operations research indicators; and 3.USAID Rapid CATCH Indicators (except malaria and anthropometric data, which were excluded with USAID permission). The KPC household survey tool incorporated and adapted items from three independent survey tools: 1) 1) KPC Rapid Core Assessment Tool on Child Health (CATCH) 2008 (Version October

3, 2008); 2) Health Care Improvement (HCI) project Household Survey tool of Mothers with children 0-23 months old (2010) which was originally developed for HCI maternal newborn projects in Mali and Afghanistan; and 3) Knowledge, Attitudes, and Practices (KAP) Survey on maternal and neonatal health (November 22, 2010 Version, CHS-Ecuador). The CHS-Ecuador team developed the questionnaire in collaboration with the local consultant team. The questionnaire was translated and sent to the CHS technical advisory team in Bethesda for review (Annex X).

The survey target population was mothers with a live child under 24 months of age living in rural parishes in Cotopaxi province. A sample of rural parishes from Cotopaxi counties was identified; urban parishes of the capital city, Latacunga, were not included in the sample. As is common with demographic health surveys, the survey sample size was designed to be representative of Cotopaxi. Using the following formula a total sample size of 462 households randomly selected from a census-based sample of 30 parishes from 7 counties of Cotopaxi province was required to produce representation of the area.

$$nz^2(pq) \div (d^2(n-1)+ z^2(pq))$$

Where n = number of children 0-23 months of age per zone (using the 2009 INEC estimates), z=1.96 given a confidence limit (α error) of 0.05, p=proportion of malnourished children, q =100%-p, d=maximum admissible error.

The sample was selected using a three-stage sampling process in which the parishes from each of the 7 counties were selected oversampling for the primary intervention country, Pujilí, using lot quality assurance sampling techniques; these included all 21 parishes in which all components of the intervention were implemented and neighboring parishes that may have been exposed to the project mass media interventions. Once the parishes were selected, households within each parish were selected, and eligible women were then selected from each households. (Most households include only one eligible woman.) The original sampling frame is presented in Annex IX. To ensure financial and logistical feasibility, the sampling frame was revised to eliminate parishes where fewer than 4 households; the same number of households from other sample parishes in the same county were included to attain the planned sample size.

The baseline and endline survey reports (available in Spanish) did not conduct or report a pre- post intervention analysis or comparison. The local research organization provided the database for the endline survey on the first day of the evaluator's visit to Ecuador, however extensive data analysis was conducted during the trip and since. Key indicators to assess the four project results/outcomes (see Table 2) were analyzed by Chi-square tests comparing pre and post incidence using SPSS for Windows version 20. Four types of comparisons were analyzed: 1) Total sample (pre-post); 2) Pujilí in which the intervention was initiated in 2011 compared with Salcedo, Saquisilí and Sigcos in which the intervention was initiated in 2012, (relative baseline to endline change); 3) Intervention compared with non-intervention counties (relative baseline to endline change); and 4) Intervention compared with non-intervention counties excluding the more "urban" townships (relative baseline to endline change). Pearson 2-tailed significance levels are presented except where any individual cell in a cross-tabulation contains ≤5 observations in which case Fisher's exact 2-tailed significance levels are presented.

Monitoring and Evaluation Data

The data used for project monitoring came from numerous sources.

Access indicators: TBAs recorded their service provision on forms developed for the project; these forms were submitted on a monthly basis to the parish doctor charged with review and collection of these M&E forms during the project's network meetings. Data on referrals and their outcomes were collected on a monthly or quarterly (depending on the indicator, for example data on referral and use of services for complications were collected quarterly as the event incidence is relatively rare) from retained project referral slips from the health facilities.

Knowledge: TBA knowledge (of danger signs, best practices, etc.) was assessed by interview quarterly.

Quality of Care: TBA quality of care was assessed quarterly by observation of simulated cases. Quality of facility-based skilled care providers' care was initially assessed by an external observer and later by review of monthly QI HIS reports on a quarterly basis. The percent of TBAs providing home-based postpartum and post-natal visits within 2 days of delivery was calculated on a semi-annual basis.

Impact indicators: Stillbirth, maternal and newborn mortality rates were abstracted from annual INEC reports of births and deaths. Pre-discharge newborn mortality rates were abstracted quarterly from intervention area hospital reports.

The monitoring and evaluation data were provided before the evaluator's visit to Ecuador, therefore these data were transferred into analyzable data sets in advance. Key monitoring and evaluation indicators to assess the four project results/outcomes (see Table 2) were analyzed by Chi-square tests comparing the first (pre) and last (post) trimester (3 months) or the first and last measured incidence (the analyses presented specify which) and by regression curve estimation using SPSS for Windows version 20. Outcomes for which data were provided cumulatively for each month or trimester per calendar year were disaggregated to provide monthly or quarterly estimates; rather than simply dividing the annual estimated number of deliveries by 12 which could result in incidence >100%, provincial INEC data were used to estimate the proportion of deliveries per month thus producing more accurate rate denominators. Pearson 2-tailed significance levels are presented except where any individual cell in a cross-tabulation contains ≤5 observations in which case Fisher's exact 2-tailed significance levels are presented.

Ethical Approval

The baseline and endline household surveys and operations research (including monitoring and evaluation data) were approved by the CHS Institutional Review Board (IRB). The evaluator took notes during the final evaluation key informant interviews; the information is summarized but not transcribed and the individual sources are not identified.

Limitations:

Baseline and Endline Household Surveys

The household survey has a number of limitations. The baseline survey was designed to assess the intervention and similar counties in Cotopaxi Province. With distinct characteristics, La Maná county was to have been excluded from the survey, but was inadvertently included in the baseline survey; the county has been excluded from all data analysis. The endline survey excluded La Maná county and made up the sample size difference, in large part by oversampling Latacunga county, which diminished the proportion of the Pujilí sample, the single county where the intervention was implemented over a two rather than one year period. Neither the baseline nor endline survey were to include parish townships, yet both did. While the household survey remained consistent between baseline and endline surveys, the sample and its proportional representation changed. Consequently, significant differences in ethnicity and profession were observed between the baseline and endline samples, whereas the age, education and marital distributions were similar. The baseline and endline samples had a similar representation of the counties in which the full intervention (Pujilí, Salcedo, Saquisilí and Sigcos) was implemented (baseline 61%, endline 58%, n.s.) and neighboring counties that may have also been exposed to the mass media communications component of the intervention, and similar rural (baseline 56%, endline 58%, n.s.) and township representation, a much smaller proportion of the endline survey was conducted in Pujilí (baseline 33%, endline 21%, p≤.001), the single county with the longest intervention implementation, which could underestimate the estimates of project effect, assuming that greater effect would be observed where the intervention had the greatest duration of implementation. Differences in baseline and endline sample may merit statistical control through regression or sample weighting techniques to adjust for these differences.

It is also recommended, in future, to have an independent expert review of the sample selected prior to implementation of each (baseline, endline) survey to ensure adherence with the terms of the contract and sample similarity.

Monitoring and Evaluation Data

Data collection for some M&E indicators encountered problems. For example, the percent of women with their first antenatal care (ANC) visits at a facility or at home exceeded 100% because some women visited more than one facility for ANC and each facility recorded women's first visit to that facility as the woman's first ANC visit. As the project focused on obstetric and neonatal care, particularly around labor, delivery and the postpartum/postnatal period, antenatal care indicators are not considered key indicators to assess the project. However, referral and receipt of care for referrals are key indicators but the information is incomplete and unreliable. Facility-based providers were to have saved the TBAs referral forms and provided them to project staff at their monthly and quarterly facility visits. However, providers apparently paid little heed to saving these forms but rather first and foremost dedicated their attention to examining and managing women's and newborns' complications as they presented to the emergency rooms. Impact data were not available except for the newborn mortality rate for the 2010 (the year before the intervention was implemented) and 2011.

The HIS QI system randomly select and review 30 patient charts for all antenatal, labor and delivery, postpartum and neonatal visits from the full prior month prior to the assessment, except for indicators of complications for which all charts of complicated cases seen in the prior month were to be reviewed (on the presumption that fewer than 30 complicated cases would present in any given month). These data indicate the proportion of reviewed charts where care is fully compliant with each norm. All 11 requirements as specified in the MOH standards for newborn care must be met to be fully compliant with essential newborn care. Reported compliance with newborn essential care prophylaxis to prevent neonatal ocular infection, which should be provided to all newborns, is unreliable because the norms recommend a specific brand of medication that has been unavailable for a number of years. While suitable substitutes have been available and likely used, some clinics report compliance with this indicator literally while others do so figuratively. This indicator is, at the time of writing this report, being modified to support accurate reporting. Still, the monitoring and evaluation estimates of compliance with essential newborn care presented in this report likely underestimate true (figurative) compliance.

The CSHPG M&E data might have been more useful for project review and decision-making had its database been better organized for review and formal analysis. For example, indicators of access to care used an expected denominator and cumulatively added cases to the numerator over time. Even without an exact denominator (which might have required extensive and relatively expensive household survey techniques), the information most useful for decision making would be monthly access, e.g., monthly cases divided by (expected annual denominator divided by 12 or the estimated number of monthly births). The project assumed enormously challenging goals and objectives, and integration of pre-programmed electronic data collection might have added a level of complexity beyond the scope of the operations research, but may be a worthwhile consideration for future efforts. Completing survey and monitoring and evaluation data collection, processing, KPC and OR Reports two or three months prior to the final evaluation might have greatly facilitated the FE process.

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

FINDINGS

This section presents the findings of the qualitative and quantitative assessments conducted for the Final Evaluation. As the Final KPC Report does not provide statistical comparison of the endline and baseline household survey, and the final Operations Research Report was not available prior to the composition or submission of this report, the quantitative results presented in this report are based on the evaluator's own analysis of a substantial amount of data. The baseline and endline household surveys household survey data were provided in SPSS for Windows data bases. Extensive preparation of monitoring and evaluation statistics provided to the evaluator prior to the evaluator's site visit was implemented to permit aggregated statistical analysis from the project data file including information available through July 3, 2013. All data were analyzed using SPSS for Windows version 20. As described in the analyses section, four types of comparisons were conducted from the household survey data: Table 3) Total sample (baseline-endline change); Table 4) Pujilí in which the intervention was initiated in 2011 compared with Salcedo, Saquisilí and Sigcos in which the intervention was initiated in 2012, (relative baseline to endline change); Table 5) Intervention compared with non-intervention counties (relative baseline to endline change); and Table 6) Intervention compared with non-intervention counties excluding the more "urban" townships (relative baseline to endline change). Pearson 2-tailed significance levels are presented except where any individual cell in a cross-tabulation contains ≤5 observations in which case Fisher's exact 2-tailed significance levels are presented. The monitoring and evaluation comparisons are provided in Table 7.

The methodologic limitations of the household survey (discussed above) created some socio-demographic differences between the baseline and endline survey participants. In particular, characteristics. The endline survey included a larger proportion of Indigenous participants, whose main occupation was agriculture upon land under their ownership (Table 3, both p≤.001); these discrepancies were observed in all analyses (total sample and sub-samples). Although not statistically significant, more women in the endline than baseline survey were married and fewer were single. In consideration of the methodologic limitations of the survey, the evaluator selected and presents the most relevant of the quantitative comparisons for each the outcome measure in the main body of the report; the source of data and type of comparison is specified for each result presented. The full analyses (Tables 3-7) are presented in Annex XIX.

General

The project dedicated its initial 3 years to establishing a comprehensive network of services across all levels and types, creating a committed and engaged foundation to advance its objectives and goal. This approach, commonly used in quality improvement, is distinct from many popular approaches that initiate early scale up. Annex IV presents the DIP work plan table. As per review of extensive documentation (Annex XI), meetings and presentations of project staff and partners, baseline and endline household survey data, the evaluation confirmed that the project did not change or add activities and successfully implemented all planned activities; the sole activity that was not successfully accomplished was the involvement of user representatives (organized beneficiaries) as specified in Table 2. In so doing, the project accomplished its primary objective, the establishment of a successful, sustainability province-wide comprehensive Cotopaxi Network for Essential Obstetric and Newborn Care network, including active micro-networks in the 21project selected most vulnerable parishes in the 4 intervention counties as well

as the many larger network activities affecting services across all levels and provider types in the province.

The projects strategic objective was to increase the use of maternal and newborn essential health care across all levels of care, from the home to the health centers and hospitals, and improve practices and healthy behaviors through a network of community and professional health workers, and through the integration of social organizations. As found in the midterm evaluation, the project developed strong, positive working relationships with its implementing partners at all levels of the MOH, with NGOs, community leaders, and providers, identified and rectified "missed opportunities" and has been continuously and highly responsive to stakeholders and implementing partners interests and requests. The project also empowered TBAs, nurses and female health workers through mentoring, information and training, and leadership development skills.

Objective 1: Improving Access to Care

To the extent to which availability and access to a continuum of care (Objective 1) was achieved (described below) through the EONC network, this was accomplished by strengthening high impact community-based neonatal care and the integration, communications and interaction of traditional birth attendants, TAPs and health centers, even though the involvement of community organizations (NGOs, radio stations, etc.) did not achieve the active involvement of services user representatives. Building and strengthening of district health teams improved the systems' capacity to coordinate and thus extend and expand access to care. The network fostered a system of identification of all pregnancies and newborns that facilitated access to improved care at the community level (Figure 3) and upwards and across the health care system (Figure 1). In 2011, the project developed a TBA Referral Form to facilitate TBA referral of maternal and newborn complications as the many TBAs do not know how to read or write. While the referral slips were not systematically safeguarded at the facilities as intended to more accurately monitor and evaluate referrals, the slips, and the identification and micro-network monthly review of pregnant women's and newborns' status have played an important role in the process in increasing accompaniment and compliance (presentation) for those referred. Figure 3 is a map of community households that the TBAs/TAPs created to identify and serve pregnancies, newborns and complicated cases in an ongoing basis; these maps are presented at monthly micro-network meetings to review and improve care, an innovation that has been adapted from traditional facility based quality improvement systems.

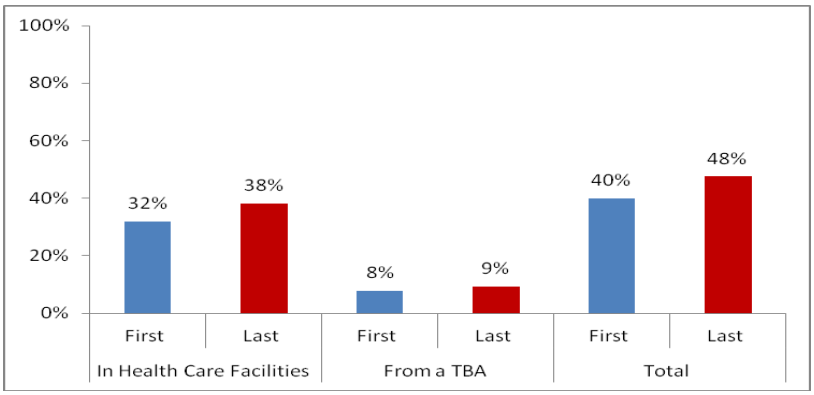
The *comparison of intervention and non-intervention parishes limited to the rural sample (Table 6)* only includes approximately 55% of the overall sample due to the inadvertent inclusion of more populated parish townships in the household survey, yet this comparison is the most relevant to assess improving access to care because it focuses on the project population and a similar (rural, neighboring parishes) sample that constitutes a comparison group. In addition to the socio-demographic discrepancies observed throughout the four comparisons, significantly more endline survey participants in the comparison of rural intervention and non-intervention parishes had no or only primary education ($p=.002$). While the project appears to have had little influence on the proportion of institutional deliveries, skilled birth attendance of institutional deliveries or TBA attendance of home deliveries, these results may simply reflect the fact that the endline sample was distinctly more indigenous, poor and vulnerable than the baseline sample.

Figure 3: TBA map of community households, pregnancies, newborns and complications

The *comparison of intervention and non-intervention parishes limited to the rural sample (Table 6)* indicates the project achieved its primary operations research objective to significantly increase the proportion of newborns receiving postnatal care within 48 hours of birth. While the proportion of newborns receiving postnatal care within 48 hours of birth in the comparison group increased from 70% to 90% between the baseline and endline household surveys (a 28.6% increase relative to baseline), the proportion increased from 52.5% to 81% (a 54% increase relative to baseline) in the intervention parishes ($p \leq .001$), nearly double the increase in the comparison group. This is a striking and a tremendous feat considering the relative marginalization of the intervention group and the fact that intervention was only implemented for two years in Pujilí and only for one year in the remaining intervention parishes. This accomplishment seems to be, in great part, attributable to improving postpartum visits in newborns delivered in institutions; while the majority of rural comparison group deliveries occurred in facilities and only slightly more than half did so in the rural intervention parishes, relatively more intervention group institutional deliveries received an institutional postpartum visit within the first 2 days of birth ($p \leq .001$).

A similar trend is observed in the *comparison of baseline and endline in the total sample (Table 3)* where the proportion of post-partum/post-natal visits within first 2 days of birth increased from 63% to 88% ($p \leq .001$). These results were also consistent with *monitoring and evaluation data* (Figure 4).

Figure 4: Postnatal Care Within 2 Days of Birth: Comparison of First and Last Project Trimesters



Source: Project monitoring and evaluation data

Of the postpartum complications identified at home and referred to a higher level for care, none presented to care in the *non-intervention group* compared with 10% at baseline and 15% at endline survey in the *intervention group comparison limited to the rural sample parishes (Table 6)*; this difference was not statistically significant due to the small number of complications identified in the home. As discussed in the limitations section above, the monitoring and evaluation data regarding referral and receipt of care for referrals are is incomplete and unreliable. Facility-based providers taught to save the TBAs referral slips apparently did not do so having first and foremost dedicated their attention to examining and managing women's and newborns' complications as they presented to the emergency rooms.

Objective 2: Knowledge, Best Practices and Satisfaction

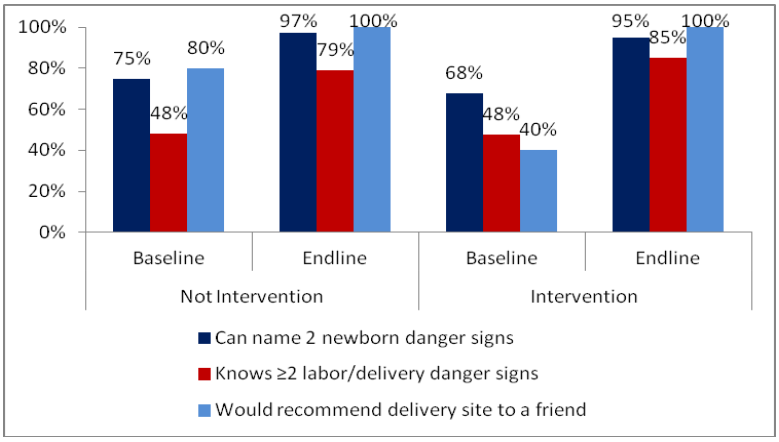
The extent to which increase and knowledge and demand for attention and evidence based best practices at both the household level and health facilities levels has been accomplished, is attributable to the project's behavior change and communications activities of communication, including extensive involvement of various public and private radio stations (Radio Latacunga, Radio Municipal Sigchos, Radio Runatacuyay, Radio San Luis de Pambil, Radio Ecos del Pueblo, Radio Stereo Saquisilí, Radio Stereo San Miguel de Salcedo), news bulletins, health fairs and events to promote a strategy of improving family knowledge of maternal and neonatal danger signs, making decisions and taking action to seek care in the recognition of those signs, and fomenting service use. The incidence and content of counseling was strengthened not only by developing the coordinated mechanisms to extend and expand service availability, and improving cultural, gender and inter-generational acceptability of those services, but also by informing people of their rights to quality health care and how to exercise those rights.

The analyses presented in the *comparison of intervention and non-intervention parishes (Tables 5 and 6)* do not provide a fair comparison of the influence of the project on knowledge and best practices because the intervention and non-intervention parishes were equally exposed to the multiple and large multi-media Social and Behavioral Change Campaign, to which changes in both groups knowledge and practices may be attributed. In this sense, the fact that substantial change occurred in both groups' knowledge and practices is likely due to the project SBCC activities. As all parishes were exposed to the SBCC activities, a better comparison of knowledge and best practices is *the comparison of the baseline and endline for the entire sample (Table 3)*. There were highly significant and large improvements between baseline and endline assessments in the proportion of mothers who exclusively breastfed for 6 months (39% to 51%), mothers who can name two newborn danger signs (75% to 97%), mothers who can name two post-partum maternal danger signs (66% to 93%), mothers making at least 2 birth preparations before birth of their youngest child (57% to 73%), mothers knowing at least 2 birth preparedness steps (68% to 81%), and mothers knowing at least 2 danger signs during labor/delivery 54% to 88% (all $p \leq .001$).

Some of the *comparison of intervention and non-intervention parishes limited to the rural sample (Table 6)* results are consistent; the rural intervention group parishes experienced significant relative improvements above and beyond the rural comparison group for some key indicators of knowledge and best practices, particularly in its project focus on delivery, postpartum and newborn care. At baseline, 68% of mothers could name two newborn danger signs compared with 95% at endline in the intervention group; 75% and 97% of comparison group mothers could do so at baseline (p≤.001). About 48% of women in both groups knew 2 danger signs of labor and delivery, and both groups showed substantial improvement in this knowledge, increasing to 79% in the comparison group and to 85% in the intervention group (p≤.001).

In the pre-post *comparison of total sample (Table 3,* satisfaction with their institutional care, as measured by the proportion who would recommend a friend to deliver in the facility where she delivered increased *from* 65% to 95% (p≤.001). In the *comparison of intervention and non-intervention parishes limited to the rural sample (Table 6)* both groups' endline satisfaction increased to 100%, only 40% of those in intervention group parishes compared with 80% in the comparison groups parishes would recommend a friend to deliver in the facility where she delivered at baseline (p≤.001). This may reflect the project improvements in quality and cultural sensitivity of care.

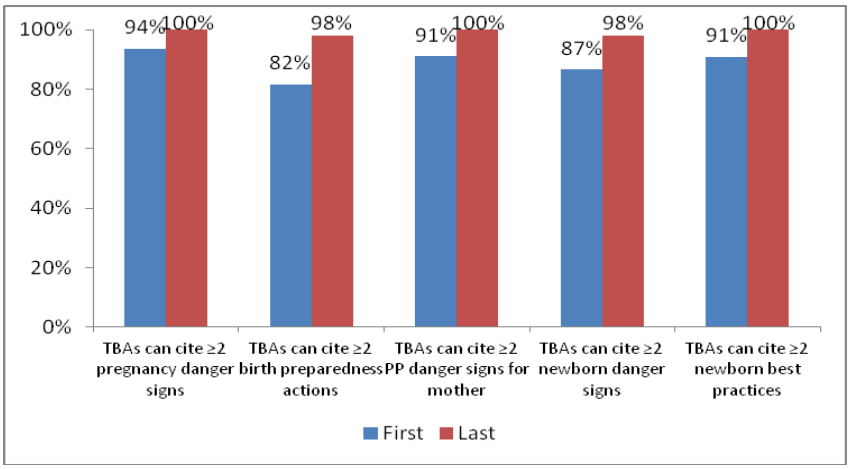
Figure 5: Mothers' Knowledge: Comparison of First and Last Project Trimesters



Source: Household survey data

The *monitoring and evaluation data* for the four intervention group parishes show consistent improvements in TBA knowledge *between the first and last project implementation trimesters (Table 7)*. During their first intervention trimester, 94% of TBAs could cite at least 2 pregnancy danger signs compared with 100% during the final trimester. At first and last trimesters 82% vs. 98% could cite at least 2 birth preparedness actions, 91% vs. 100% could cite at least 2 PP danger signs for mother, 87% vs. 98% % could cite at least 2 newborn danger signs and 91% vs. 100% could cite at least 2 newborn best practices, respectively. All of these differences were highly significant (p≤.001).

Figure 6: TBA Knowledge: Comparison of First and Last Project Trimesters



Source: Project monitoring and evaluation data

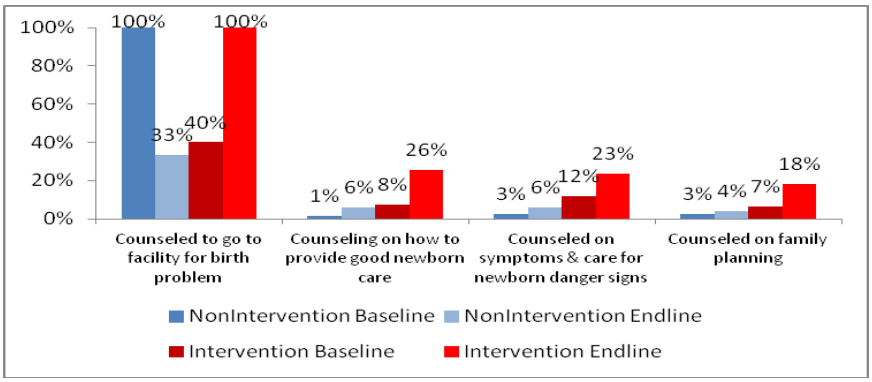
Objective 3: Quality of Care

Training network TBAs in basic EONC skills and facility providers in QI mechanisms and coordination of services, as well as expansion of services (initiation of Kangaroo Mother Care, as recommended in the mid-term evaluation), and the design and implementation of M&E, QI mechanisms across all levels of care, from household to hospital, and efforts to improving the cultural competence of institutional health services supported the observed improvements in quality of essential maternal and newborn. As observed in the mid-term evaluation, the project team and network mechanism provides on-going mentoring, supportive supervision, training, involvement in health parish teams, and regular, active engagement in problem solving across the continuum of care thus developing and sustaining future health care leaders, including rural doctors, nurses and MOH staff. This includes traditional promotion of global EONC best practices, ensuring continual access to technical training materials, guides and protocols using innovative state of the art training techniques and media, that have accomplished universal use of MOH protocols and standards and rapid quality cycles in area facilities. Compliance with critical standards are described below. The project established innovative maternal audits to systematically identify and review maternal deaths and near misses by the provincial and hospital authorities. While the complete monitoring of referrals continues to face challenges, site visits and discussions with network participants confirm that referral systems are in place at all levels for maternal-neonatal complications and emergencies.

There were few statistically significant differences in the change in quality of care from the *household survey data*. Some information, for example regarding antenatal care in home visits, was collected on too few women to provide meaningful analysis. In the household survey, the *comparison of intervention and non-intervention parishes limited to the rural sample (Table 6)* shows a comparison group decrease in the proportion of women told to go to a facility for a birth problem by the TBA or provider (the single woman with a birth problem was told at baseline but only 1 of the 2 with birth problems were told to do so at endline) compared with 2 of the 5 in the intervention group at baseline and all 5 of the 5 reporting birth problems in the intervention group at endline; due to the small number of cases the difference is not statistically significant. There was much greater improvement in the proportion of women counseling on what a mother must do to provide good newborn care during a postpartum home visit in the intervention group (baseline 7.5%, endline 25.5%) than comparison group (baseline 1.4%, endline 3.3%; p≤.001). Similar relative improvement patterns were observed for the proportion of women during a postpartum home visit who were counseled on symptoms and care for newborn danger signs (intervention: baseline 11.8%, endline 23.4% vs. comparison: baseline 2.7%, endline 6.0%,

p=.01) and counseled on family planning (intervention: baseline 6.5%, endline 18.1% vs. comparison: baseline 2.7%, endline 4.0%, p=.01).

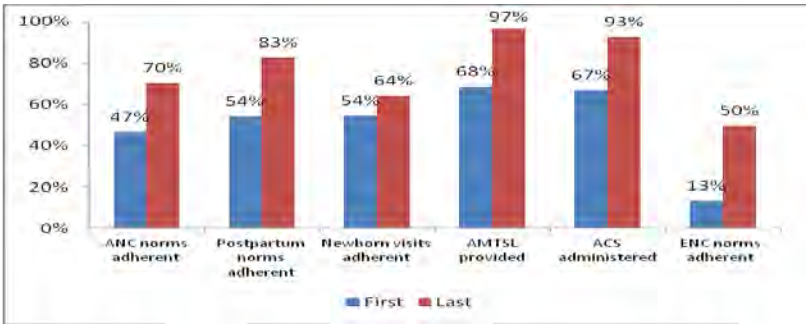
Figure 7: Postpartum Home Visit Quality of Care: Comparison of First and Last Project Trimesters



Source: Project monitoring and evaluation data

The *monitoring and evaluation data for the facilities serving the intervention group parishes (Table 7)* show consistent quality of care improvements for all but postpartum hemorrhage and newborn sepsis case-based indicators, these and PROM management include very few cases that do not permit fair comparison. During their first intervention trimester, 47% of facility ANC sessions were adherent with clinical standards compared with 70% during the final trimester (p≤.001). At first and last trimesters 54% vs. 83% of facility postpartum sessions were adherent with clinical standards (p≤.001). At first and last intervention period trimesters, 54% and 64% of newborn facility visits were adherent with clinical standards (p=.01). During the first intervention trimester, 68% of facility deliveries received AMTSL and this increased to 97% during the last trimester. At first and last trimesters, 13% vs.50% of facilities had full compliance with ENC standards (p≤.001). this improvement was smaller than expected as one of the 11 criteria to completely adhere with newborn care norms compliance, prophylaxis to prevent neonatal ocular infection, is unreliable because the norms recommended a specific brand of medication that has been unavailable for a number of years. Suitable substitutes have been available and used, yet some clinics report compliance with this indicator literally (having not used the specified brand) while others do so figuratively (having used an effective alternative). At the time of writing this report, the ocular indicator is being modified to not be brand specific and thus support accurate reporting. Still, the monitoring and evaluation ENC compliance estimates presented in this report likely underestimate true (figurative) compliance. TBA adherence with maternal postpartum physical examination standards as assessed by simulation or real-time observation increased from 54% to 77% (p≤.001).

Figure 8: Facility based Quality of Care: Comparison of First and Last Project Trimesters



Source: Project monitoring and evaluation data

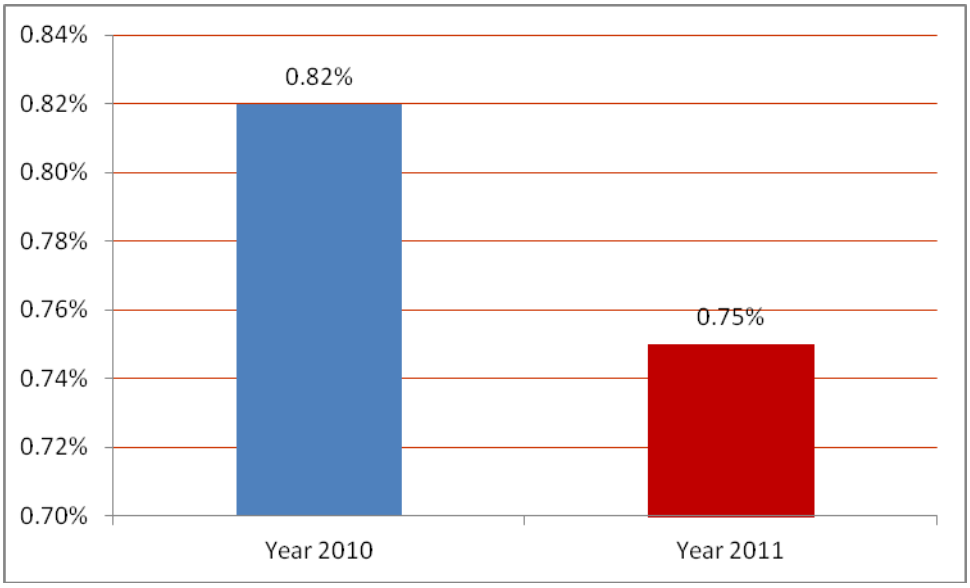
Comparison of Pujilí (2 Years Intervention) with the Three Other Intervention Parishes using the Baseline and Endline Household Surveys Objectives 1 (Access), 2 (Knowledge) and 3: (Quality of Care): Table 4

The project theorized that there might be stronger effect in Pujilí than in the other three intervention counties associated with longer duration of intervention implementation. However, due to the baseline and endline differences in sampling, that particularly affected (diminished) the proportion of the endline survey conducted in Pujilí, the sole county with two rather than one years of project implementation, these comparisons are problematic. The discrepancies in socio-demographic characteristics, particularly those associated with service use and culture (e.g., percent Indigenous, main profession/poverty), are more pronounced in this sub-sample than in the larger samples (Table 4). In some cases larger effect is seen in Pujilí than in the other intervention counties. For example, there was a greater increase in the proportion of mothers who could name two newborn danger signs; in Pujilí this increased from 69% to 97%, and in the 3 other intervention counties it increased from 79% to 95% ($p \leq .001$). There was a much larger increase in satisfaction, as measured by willingness to recommend their delivery facility to a friend, in Pujilí (34% vs 98%) than in the other 3 counties (74% vs 99%, $p \leq .001$). There was greater improvement in the proportion of women told by a TBA or provider to go to a facility for a problem with the birth in Pujilí (60% vs 100%) than in the other 3 counties (50% vs 75%) however this was not statistically significant due to the small number of cases. However, exclusive breastfeeding in the 3 counties with only 1 year of intervention implementation increased from 40% to 55% whereas exclusive breastfeeding declined from 46% to 43% in Pujilí ($p=.07$, marginally significant). Similarly, during a postpartum home visit, there was less improvement in the proportion of women in counseling on what a mother must do to provide good newborn care (11% vs 24%, e.g., about double the baseline rate) than in the other 3 intervention counties (6% vs 17%, e.g., about triple the baseline rate, $p=.002$). There was a slightly greater, but significant similar increase in the proportion of mothers who could name two post-partum maternal danger signs in Pujilí this increased from 61% to 88%, and in the 3 other intervention counties it increased from 70% to 95% ($p \leq .001$). Although highly significant ($p \leq .001$), results were similar for baseline to endline change in the proportion of mothers knowing at least 2 danger signs during delivey; Pujilí increased from 53% to 88% and the remaining intervention counties increased from 55% to 88%. While it seems greater improvement might be observed with longer project duration, Pujilí was also relatively disadvantaged compared with the other 3 intervention counties, and was proportionately under-represented in endline survey. These same sampling discrepancies, to a varying extent (equal or greater in the total sample and perhaps less in the intervention compared with non-intervention counties) complicate the interpretation of these inconsistent results. As with the previously presented results, represent many and often large improvements in the limited amount of time in which the intervention was implemented.

Objective 4: Improve Policy Environment

Table 8 presents a summary of the primary inputs, activities, and outputs that represent the major achievements that contributed to key project outcomes. While the project inputs and outputs were minimal (trainers, BCC materials and donated media spots and messages), the project activities covered an enormous range as specified in Table 8. These activities not only produced the project outcomes already presented in this report, including full implementation of the recommendations from the mid-term evaluation, except for further involvement of organized beneficiaries (discussed in the conclusions section), but also produced a substantial reduction in neonatal mortality rates between the year prior to and the first year of intervention implementation (Figure 9). The NMR declined from 8.2/1,000 livebirths in 2010, the year prior to intervention implementation, to 7.5/1,000 livebirths in 2011, the first year of project implementation, an 8.6% decline relative to the baseline rate and an enormous decline in a short period of time.

Figure 9: Neonatal Mortality Rates In the Year Before (2010) and First Year of Project Implementation



The project, conducted in one of Ecuador's 24 provinces, in particularly highly marginalized and vulnerable parishes, counties and province, under which improvements might be expected to be the most difficult to accomplish, also had a monumental effect on policy environment, leading to creation of a national policy, with a dedicated budget, and to the MOH assumption and expansion of the EONC Network model to the entire country of Ecuador as specified in the 2013 Norms(*Estrategia Integral de Reducción de Muerte Materna y Neonatal 2013*).

Table 8: Summary Table of Inputs, Activities, and Outputs That Contributed to Key Outcomes

EXPECTED OUTCOME #1: *Increase availability/access to and utilization of a coordinated continuum of high-impact maternal newborn care provided as part of a network of community and facility services.*			
Strategy #1: Coordinate TBAs, health centers, and EBAS, for high-impact maternal and neonatal care			
Inputs	***Activities***	***Outputs***	***Outcomes***
	Formation of Parish Councils in the selected parishes in Pujili, Salcedo, Sigchos and Saquisili counties		*Councils formed and functioning in Pujili, Salcedo, Sigchos and Saquisili counties*
	Formation of Micro-networks in all parishes in Pujili, Salcedo, Sigchos and Saquisili counties		*Micro-networks formed and functioning in Pujili, Salcedo, Sigchos and Saquisili counties*
	Meetings with CONPAS in Pujili, Salcedo, Sigchos and Saquisili counties to form the Parish Maternal Neonatal Plan		*Completed in Pujili, Salcedo, Sigchos and Saquisili counties*
	Quarterly meetings to monitor the execution of the health plan with the CONPAS and micro-network from each parish		*Completed in Pujili, Salcedo, Sigchos and Saquisili counties*
Strategy #2: Develop/strengthen communication and referral mechanisms among health care levels (community, 1st and 2nd levels)			
Inputs	***- Activities***	***Outputs***	***- Outcomes***
	Composition, approval, and publication of a Reference/Counter-Reference System Guide for the provincial level health system.		*Reference/Counter-Reference Provincial System Guide completed and approved*
	Implementation of a unified Reference/Counter Reference system at the provincial level		*In process and referrals and counter referrals are increasing in project areas at all levels.*
	Composition of a Guide for the implementation of Emergency Obstetric and Neonatal emergencies with selected community committees		*Completed and distributed).*
	Support for the establishment and operation of community committees for obstetric emergencies in selected communities		*Completed and on-going. In addition, Emergency Plans have been developed and implemented in each of the targeted communities.*

Strategy #3: Improve interpersonal relations between health personnel and community health workers/TBAs			
Inputs	***Activities***	***Outputs***	***Outcomes***
Trainers	*Workshops for health professionals on Intercultural awareness and fair treatment of patients*		*Completed. Two planning workshops and training workshops conducted at area hospitals for hospital, health center and sub health center staff.*
	Exchange meetings between TBAs, health promoters, and personnel in each Micro-network		*Completed and ongoing.-*
	Implementation of surveys to measure the interpersonal relationships between health workers, TBAs, and health promoters.		*Baseline and EndlineTBA and Household surveys completed.*
Strategy #4: Actively involve community organizations and local governments			
Inputs	***Activities***	***Outputs***	***Outcomes***
	Parish meetings with community leaders, parish councils, TBA representatives, health promoters, and women's groups to form and strengthen the Parish Councils of Health.		*Completed and on-going.*

EXPECTED OUTCOME #2: *Improved knowledge/demand for evidence-based community and facility-level maternal newborn services, including improved household health promotion practices.*			
Strategy #1: Behavior Change Communication Activities			
Inputs	***Activities***	***Outputs***	***Outcomes***
Radio time (donated) *Information, education, and communication (IEC) and BCC materials (developed)*	*Design, implementation, and monitoring of a Behavior Change Communication strategy for Maternal and Neonatal Health*		*Completed and Maternal Kit and a series of high quality and tested BCC materials produced and disseminated widely by project (See Annex 1 for list).*
Strategy #2: Strengthen counseling activities carried out by health personnel, TBAs and community health workers, at facilities as well as in homes			

Inputs	Activities	Outputs	Outcomes
	Design, implementation, and monitoring of a proposal for strengthening the activities of counseling by institutional and community health care providers		*Completed and on-going.*
Strategy #3: Improve cultural competence of institutional health care services			
Inputs	***Activities***	***Outputs***	***Outcomes***
	Process implementation of humanization and cultural appropriateness of childbirth care in four counties		*Completed and on-going. A training module was developed and Pujili and Zumbahua staff trained (including cleaning personnel and guards). An additional outcome is Zumbahua Hospital posted all signs in Kichua as well as Spanish as a result.*
Strategy #4: Disseminate citizens right to quality health care			
Inputs	***Activities***	***Outputs***	***Outcomes***
	Design, implementation, and monitoring of the diffusion of a proposal regarding citizens' rights to quality health care		*Advocacy has been a key part of the Micro-network and parish activities and an expanded plan is In process. The BCC staff member has extensive experience in human rights.*

EXPECTED OUTCOME #3: *Improved quality of maternal-neonatal services provided as part of a coordinated network of facilities and community agents*			
Strategy #1: Train TBAs for Basic EONC skills			
Inputs	***Activities***	***Outputs***	***Outcomes***
Trainers	*TBA training workshops on knowledge, skills, and expertise in community EONC*		*Completed and on-going.*
Strategy #2: Design/implement mechanisms for TBA supervision and CQI			
Inputs	***Activities***	***Outputs***	***Outcomes***

	Design a monitoring system and implement CQI for TBAs in selected parishes in Pujilí, Salcedo, Saquisilí and Sigchos		*Completed and on-going in Pujili, Salcedo, Saquisili and Sigchos counties.*
Strategy #3: Strengthen EONC knowledge/skills of health care workers			
Inputs	***Activities***	***Outputs***	***Outcomes***
Trainers	*EONC skills training for institutional providers of the Provincial Network*		*Completed and on-going. Increased inputs implemented as recommended in midterm evaluation*
Strategy #4: Strengthen supervision and QI mechanisms for health facilities			
Inputs	***Activities***	***Outputs***	***Outcomes***
	Support to the provincial MOH in Quality Management		*Rapid Quality Circles ("Ciclos Rápidos") have been implemented and are on-going.*
	CQI technical support visits as necessary		*Consistent and on-going. Team conducts regular visits to provide support to health facility staff.*
Strategy #5: Design/implement community/users participation in CQI control			
Inputs	***Activities***	***Outputs***	***Outcomes***
	Development and implementation of a proposal to strengthen the role of community representatives and users in CONPAS, County Councils, and CUSs based on the Ecuadorian Law on Maternity and Child Care		Result: Limited involvement of community representatives in network.

EXPECTED OUTCOME #4: *Improved policy environment for coordination among community agents (TBAs), health care institutions and community/social organizations.*			
Strategy #1: Promote a County-level EONC network that includes community and institutional services			
Inputs	***Activities***	***Outputs***	***Outcomes***
	Develop and implement a technical proposal for the creation of County EONC network, with a register of health stake holders and the design of		*Completed*

	a monitoring system		
	Quarterly meetings for coordination and monitoring of the county Networks and Micro-networks		*Completed and on-going.*
Strategy #2: Develop a subsystem for oversight and analysis of maternal and neonatal deaths			
Inputs	***Activities***	***Outputs***	***Outcomes***
	Design, implementation, and monitoring of a maternal and neonatal death epidemiological surveillance system at the provincial level		*Drafted, approved and in implementation.*
Strategy #3: Strengthen County and Parish-level Health Councils and Free Maternity User Committees			
Inputs	***Activities***	***Outputs***	***Outcomes***
	Organizational strengthening and training of county and parish level CUSs on the Ecuadorian Law of Free Maternity and Child Care		*Completed and on-going.*
Strategy #4: Disseminate legal framework supportive of EONC Network			
Inputs	***Activities***	***Outputs***	***Outcomes***
	Design and implementation of a communication proposal for a favorable legal EONC framework with a set of graphics and printed materials to diffuse regularly through mass media		*Completed. An investigation was carried out on the legal framework for the role of TBAs and a Guide was developed.*

Innovation Grantees—OR Findings

The evaluation confirmed that the project did not change or add activities and successfully implemented all planned activities (Table 8); the sole activity that was not successfully accomplished was the involvement of user representatives (organized beneficiaries). Numerous indicators were assessed to gauge process implementation and effectiveness. Significant improvements were observed in the main OR objective and in many although not all of the key indicators. This is typical in all projects assessing large numbers of indicators; some, simply by chance, will not show significant improvement. Still, recognizing that actual project implementation initiated after establishing a strong foundation of a coordinated, functioning complex network, was limited to 2 years in one of the four intervention counties and limited to 1 year in the remaining three intervention counties, the number and amount of improvements observed during the project period is impressive.

The documents reviewed, discussions with and presentations from key stakeholders and project staff with focused inquiry about the OR achievements and the project KPC and M&E data the evaluator analyzed for this report confirm the project successfully achieved its central OR innovation of increasing coverage and quality of home- and facility-based early post-partum care for mother and newborn. In the relatively short implementation time frame (1 year in 3 counties and 2 years in Pujilí), the project has achieved profound effects in improving critical coverage, knowledge and quality of care. These accomplishments occurred by establishing a sustainable, complex network for Essential Obstetric and Newborn Care, an enormous feat that has coordinated care across providers, levels and agencies in a manner that *apriori* would be difficult to initially comprehend. Agencies that once worked in competition now work in partnership to the benefit of women and their newborns. For example, if an ambulance is not available at an MOH health center, that site now contacts and successfully coordinates the availability of the ambulance for the referral with the IESS or other private facilities. Taking three years to establish this network and adaptation of quality improvement methods to encompass all levels of care, from community to hospital, has produced this impressive coordinated system of care. The network processes have, in its relative short implementation period, improved numerous outcomes (access and coverage, knowledge and quality of care), and have produced a demonstrable impact on improving newborn survival.

The key accomplishments of the project are:

- The project Increased its principal outcome of postpartum and postnatal visits within 2 days of birth for the four vulnerable, marginalized intervention counties and Cotopaxi Province, thus improving equitable access to, utilization of, and availability of this critically important care, focused on a time during which most neonatal mortality occurs, through a continuum of high-impact community- and facility-based maternal newborn services through a coordinated network of TBAs, health facilities and social organizations.
- The project also achieved its objective to improve numerous household maternal newborn best practices, including exclusive breastfeeding, recognition of postpartum and newborn MN danger signs, knowledge of newborn best practices, presentation of referral for complications from home to facility and satisfaction with services.
- There was extensive and systematic improvement in adherence with maternal and newborn care evidence base standards and TBA knowledge and skills observed at the household and facility levels.
- The EONC network project was extremely successful in generating interest and promoting a favorable policy environment to ensure that the project accomplishments will be sustained and scaled up. The Ministry of Public Health has created a national policy and dedicated budget, assume responsibility for the expansion, implementation and sustenance of the project's EONC

Network model to the entire country of Ecuador as specified in the MOH 2013 Norms).

CONCLUSIONS

The CSHGP project in Ecuador focused on achieving sustained improvements in the access to and quality of Essential Obstetric and Neonatal Care (EONC) services that affect child survival and health among vulnerable populations by supporting innovative, integrated community-oriented programming of private voluntary organizations and non-governmental organizations (PVOs/NGOs) and their in-country partners in the Cotopaxi province of Ecuador. The overarching project objectives were to improve EONC through building a provincial-level network of coordinated maternal newborn health services, strengthening linkages between levels of care (community, primary, hospital) and along the continuum of antenatal, intra- and post-partum care. The project sought specifically to strengthen coverage, utilization, coordination and quality of community and facility-based high impact, evidence-based services for mothers and newborns, with community services delivered by TBAs closely supported by health center staff and community organizations.

At the inception of the project in 2009, there was little or no coordination of essential services between the public or other health care institutions. The four levels providing essential MNHC, TBA community care, parish ambulatory health centers, county hospitals and the provincial hospital generally worked in isolation with little or no coordination with private providers, posing great challenges to an effective network of continuum of care with functioning referral mechanisms.

The central project innovation was to develop an integrated network of provincial Essential Obstetric Neonatal Care (EONC) services in Cotopaxi province among TBAs, community organizations, MOH, IESS, and private organizations to create an efficient, effective collaborative continuum of care that integrates community, home, and facility-based evidence-based services to prevent and manage the leading causes of maternal and newborn mortality. Parish health teams (CONPAS) were supported to meet regularly review and resolve problems in health care delivery and to advance the coordination, access to and quality of community and facility MNHC. Most maternal and infant deaths occur during labor, in the immediate post-partum period and during the first week after birth. Therefore, parish level teams were taught to use QI methods adapted for community-based implementation to measure and strengthen early post-partum care at and referral from the home. Parish health teams also were encouraged to meet with clients to address key barriers to referral and prompt care seeking. The project was implemented to increase the availability, acceptability and use of high impact EONC through community-based care, by improving referrals of mothers and newborns exhibiting signs of complications, promoting and scaling up coordination of providers and institutions from the MOH and IESS parish-level health centers to encompass county and provincial institutions as well as private providers. The project also brought local parish and municipal government representatives to authorize and support improving access to, and acceptability and use of health care based on various national laws that mandate coordination of and care provision by the public health care system.

The project assumed an enormous task, the coordination of disparate (Ministry of Health, Social Security, private providers and non-governmental organization) health services and potential resources to ensure the provision, utilization and coordination of high quality culturally sensitive and acceptable essential obstetric and newborn care across the continuum of all levels of care and types of providers. The project objective was to establish a comprehensive, sustainable provincial-level network of coordinated maternal newborn health services to strengthen both the linkages between the levels of care (community, sub health post, health post, health center and hospital; Figure 1) and to improve the quality of prenatal, intra- and postpartum and postnatal care to improve practices from the household through the hospital. In so doing, the project sought to increase skilled care coverage and strengthen the utilization, coordination and quality of community and facility-based high impact, evidence-based services for mothers and newborns, with community services delivered by TBAs supported by health

center staff and community organizations. The EONC network model was implemented in collaboration with Ecuador MOH and in close alliance with the national and provincial MOH, USAID, PVO/NGOS, providers and service users to improve equitable coverage and quality of care, A comprehensive provincial-level network that coordinates community- and facility-based services (public and private) along the continuum of care from the households to facilities was created. The EONC, network supports increased coverage and improved quality of care in vulnerable, indigenous communities, including in the health care centers and county hospitals in these regions.

The CSHPG project dedicated its initial 3 years to establishing a complex, comprehensive network of services across all levels and types, creating a committed and engaged process and a foundation to advance its objectives and goal. In so doing, the project accomplished its primary objective, the establishment of a successful, sustainability province-wide comprehensive Cotopaxi Network for Essential Obstetric and Newborn Care network, including active micro-networks in the twenty-one parishes with the highest proportion of vulnerable and marginalized populations in the 4 intervention counties in the Cotopaxi province as part of a deliberate equity strategy, implementing many broader network activities of coordination, networking, communications, QI, mortality surveillance and advocacy affecting services across all levels and provider types in the province. The project created a highly detailed implementation plan that specified and facilitated reaching its goals, objectives, intended results and intervention mechanisms in a manner that facilitated both project implementation and evaluation. All of the planned extensive project activities were successfully implemented except for the involvement of user representatives (organized beneficiaries). This was not achieved because these representatives did not receive compensation (other than transportation costs) for their participation and were otherwise fully occupied; therefore they did not have the time or incentive for participation. The time taken to establish the coordinated network has been the key to the provincial institutionalization of the EONC network model. While the project assessed numerous process and outcomes indicators, and improvements were not universally observed in these many indicators, the breadth and amount of improvement observed in many key indicators within the short project intervention implementation time was impressive, particularly because stimulating improvement among the most marginalized and vulnerable population is the hardest to achieve and usually takes considerable time. The key achievements include improved KAP, QOC and improved neonatal survival and the MOH assumption of the model for national scale up and include:

- household maternal best practices (exclusive breastfeeding, recognition of neonatal and postpartum danger signs, presentation of home complication referrals to a facility, and client satisfaction, among others),
- postpartum visits within 2 days of birth, and
- substantial reduction in neonatal mortality, and
- the MOH assumption of the model for national scale up.

The project also identified the key components of the EONC model as:

- coordination and networking across all levels,
- rapid/short courses to improve quality of care and continuous quality improvement systems,
- improved clinical knowledge to manage complications,
- use of culturally appropriate communication, and management of health care provision across all levels of care.
- quality of services was greatly improved in project sites.

The Cotopaxi EONC network project experiences, results and lessons learned have enriched, strengthened and made a profound contribution to advancing the health system strengthening the MOH goals. The project particularly influenced MOH policies regarding the roles of TBAs and community agents in the public health system, how best to coordinate health care institutions, the role of evidence-based EONC in reducing maternal and newborn mortality, and on the mechanism to institutionalize continuous quality improvement. CSHGP's partnership with the Center for Human Services in Ecuador reinforces that strong partnerships for learning and action with the Ministry of Health can result in national level policy and strategy impact. The evidence and learning generated by CHS for its innovative "essential obstetric and neonatal care" network model motivated the decision by the MOH for country-wide expansion of the model, as part of a national initiative to reduce maternal and newborn mortality, including a dedicated budget and staffing in all provinces of Ecuador. The model will continue to be adapted within Ecuador appropriate to the setting and can be globally adapted across countries. The model also is adaptable as a mechanism to improve EONC by in-country partners at national, regional, and local levels, including the Ecuador MOH and other relevant ministries, district and provincial health teams, the Social Security Administration, relevant professional associations, local organizations, and communities in project areas), USAID (CSHGP, Global Health Bureau, USAID Mission in Ecuador and other CSHGP grantees), and can serve as a source of evidence to help inform decisions about future program designs and policies for the global health community. The USAID investment and commitment to CSHGP has had maximum cost-effectiveness; for the USAID project investment and commitment, the MOH of Ecuador has assumed logistical, political and financial responsibility to nationally expand the Cotopaxi EONC Network model.

RECOMMENDATIONS

Two main recommendations are made. The first relates to the national expansion of the EONC Network Model which is already underway in Ecuador. Given their unique experience, conversations with the MOH are currently underway to engage select CHS staff and network participants to help adapt and guide the process for national implementation. The second recommendation is to engage a local statistician to develop analytically friendly databases for its monitoring and evaluation of process and quality improvement, including outcomes, indicators. Such projects, with frequent monitoring to review and improve processes in an ongoing manner, produce large amounts of information that should not only be user but analytically friendly. This can be accomplished with widely and sometimes freely available software (MS Excel, MS Access, Epidata). The data base should auto-analyze the information or be developed with analytic programs that can be easily implemented in freeware.

Table 9: Recommendations

Finding	*Conclusion*	*Recommendation*	*Action*	*Who Is Responsible*
Effective Coordination and Improvement of Services	*National Expansion of EONC Network Model*	*Provide Technical Assistance to MOH*	*Negotiate Provision of TA with MOH*	*CHS and Network Participants*
Use of Data to Review and Improve Process	*Expand Use of QI & Process M&E*	*Simplify Type of Database/Data Recording*	*Create Analytically-Friendly Database*	*CHS/MOH*

ANNEXES

ANNEX I. PROGRAM LEARNING BRIEF(S): EVIDENCE BUILDING

NOT APPLICABLE

ANNEX II. LIST OF PUBLICATIONS AND PRESENTATIONS RELATED TO THE PROJECT

Traditional Birth Attendants (TBAs)

- Training Guides and Modules
- Activity Register
- Quality Control Activity Measurement Tool
- Referral Form
- Baseline Survey
- Legal Framework Guide for Role of TBAs in Health System
- Training Flipchart for TBAs: Pregnancy, Delivery, Postpartum, Newborn Care
- Database to process checklists of activities in TBA simulations
- Monthly register of community care by TBAs
- Consolidated monthly record of care by TBAs (broken down by micronetwork, health area, and province)
- Quarterly KPC survey of KPC for micro-network TBAs
- Database to process the KPC survey answers

Community Health Networks and Strengthening Links to Health System

- Guide for Formation of Networks
- Guide for Improving Access to Care through Rapid Quality Improvement Circles (Ciclos Rápidos)
- Risk Screening Tool for Pregnant Women and Newborns
- Guide to using home visit job aid
- Talking map
- Emergency care flowchart
- Brochure of birth plan

Community Mobilization

- Guide for Forming Parish Health Committees
- Guide for Elaboration of Parish Maternal-Neonatal Health Plans
- Guide for Emergency Referrals for Maternal-Neonatal Complications
- Legal Framework Guide for Community Participation in Improving Quality and Access to Health Care

Inter-Cultural Care (Culturally Sensitive)

- Manual of Humanization and Cultural Appropriateness of Delivery Care
- Proposal to improve the treatment

Referrals

- Guide for Referrals and Counter Referrals
- TBA Referral voucher

Clinical Skills Training

- Clinical Training Modules for Emergency Obstetric and Neonatal Care
- Training Guide for Helping Babies Breathe (Newborn Aspyhxia)
- Implementation Plan of Kangaroo Mother Care Method in EONC Cotopaxi
- Guide and Protocol for Kangaroo Mother Care
- Training and implementation plan of the HBB strategy in EONC Cotopaxi
- HBB Technical tools

Improving Quality of Care

- Rapid Quality Circle Plans for Pujilí and Zumbahua Hospitals
- Development Matrix of Rapid Improvement Cycles for EONC micronetworks.
- Self-Measurement Form of Quality Standards of Basic and Community EONC Care
- TBA Quality Care Evaluation Forms

Epidemiological Surveillance of Neonatal Mortality

- Methodological Guide
- Implementation Plan for Surveillance System

Social Behavior Change and Communication

- Implementation Plan for SBCC
- Informational Radio Spots and Jingles
- Counseling and Educational Video for Delivery, Postpartum and Child & Newborn Care
- Institutional Video about EONC Network Project in Cotopaxi, Ecuador
- Communication Manual in order to Strengthen Communication Skills
- Kangaroo Mother Care Counseling Brochure
- Kangaroo Mother Care Flyer

Abstracts/Presentations

- Linking Traditional And Formal Health Systems To Save The Lives Of Ecuador's Most Vulnerable Mothers And Newborns Flyer (Adaptation of Year 3 Result Highlight disseminated at Global Maternal Health Conference in Arusha, Tanzania)
- Abstract presented at Global Maternal Health Conference 2013 in Arusha, Tanzania: Aligning two health systems to improve access and quality of maternal care for the most vulnerable: linking formal care and traditional birth attendants in Ecuador
- Improving Essential Obstetric and Neonatal Care in Cotopaxi, Ecuador: Final Evaluation Debrief (presented to USAID Ecuador in August 2013)

ANNEX III. PROJECT MANAGEMENT EVALUATION

Project Management Evaluation

The project assumed an enormous task, of creating a comprehensive, coordinated, self-sustaining provincial network of essential obstetric and newborn care services. Overall, the project was well managed in terms of planning, information management, personnel management, supervision, training, logistics, technical and administrative support.

The Cotopaxi EONC network project experiences, results and lessons learned have enriched, strengthened and made a profound contribution to advancing the health system strengthening the MOH goals. The project particularly influenced MOH policies regarding the roles of TBAs and community agents in the public health system, how best to coordinate health care institutions, the role of evidence-based EONC in reducing maternal and newborn mortality, and on the mechanism to institutionalize continuous quality improvement. CSHGP's partnership with the Center for Human Services in Ecuador reinforces that strong partnerships for learning and action with the Ministry of Health can result in national level policy and strategy impact. The evidence and learning generated by CHS for its innovative "essential obstetric and neonatal care" network model motivated the decision by the MOH for country-wide expansion of the model, as part of a national initiative to reduce maternal and newborn mortality, including a dedicated budget and staffing in all provinces of Ecuador. The model will continue to be adapted within Ecuador appropriate to the setting and can be globally adapted across countries. The model also is adaptable as a mechanism to improve EONC by in-country partners at national, regional, and local levels, including the Ecuador MOH and other relevant ministries, district and provincial health teams, the Social Security Administration, relevant professional associations, local organizations, and communities in project areas), USAID (CSHGP, Global Health Bureau, USAID Mission in Ecuador and other CSHGP grantees), and can serve as a source of evidence to help inform decisions about future program designs and policies for the global health community. The USAID investment and commitment to CSHGP has had maximum cost-effectiveness; for the USAID project investment and commitment, the MOH of Ecuador has assumed logistical, political and financial responsibility to nationally expand the Cotopaxi EONC Network model.

Planning

- Project planning was inclusive and extensive. The project's detailed implementation plan specified its goals, objectives, intended results and intervention mechanisms in a manner that greatly facilitated both project implementation and evaluation. The project was conducted collaboratively and was highly aligned with in-country partners at national, regional, and local levels, including the MOH, the Social Security Institute, the Peasant Social Security Program, the Zumbahua Program of the Claudio Benatti Foundation, various NGOs, district and provincial health teams, local organizations, and communities in project areas. While the USAID Mission in Ecuador is no longer directly involved in the arena of health, the project was continuously aligned with USAID (CSHGP, Global Health Bureau, USAID Mission in Ecuador). Figure 2 depicts the project partnerships and alignment of strategies. These partnerships produced profound advances in policy, health systems coordination, communications and EONC availability and quality including: the MOH official signing of a Letter of Understanding and appointment of the Division of Norms to coordinate with CHS in project implementation;. the Provincial Cotopaxi MOH Director appointment of a team of professionals for ongoing coordination with CHS in project implementation including holding regular semi-monthly meetings with the local MOH team; coordination with MOH facility staff (~419 professional staff in the provincial hospital, five county hospitals and 22 health centers); coordination with Social Security (IESS) facility staff (35 professional staff of the IESS provincial hospital and 29 staff in 19 health centers of the Peasant

Social Security program in Cotopaxi); coordination with community organizations and agents including 204 Traditional Birth Attendants; 134 community-based Primary Health Workers (TAPs); 5 Emergency Transport Committees and 8 Community Health Committees (CHCs); and local NGOs including the Zumbahua hospital of the Claudio Benatti Foundation; World Vision PDA Guangaje Program; Plan International; Populorum Progressio Foundation; Latacunga Radio; Sigchos Municipal Radio, Runatacuyay Radio; San Luis de Pambil Radio; Ecos del Pueblo Radio; Saquisili Radio; San Miguel de Salcedo Radio.

Supervision of Project Staff

- Supervision was an intricate and essential element of the many aspects of the EONC network. Supervision was extensively integrated, institutionalized and maintained. The evidence and learning generated by CHS for its innovative "essential obstetric and neonatal care" network model motivated the decision by the MOH for country-wide expansion of the model, as part of a national initiative to reduce maternal and newborn mortality, including a dedicated budget and staffing in all provinces of Ecuador. The model will continue to be adapted within Ecuador appropriate to the setting and can be globally adapted across countries. The model also is adaptable as a mechanism to improve EONC by partners within and beyond the country.

Human Resources and Staff Management

- The MOH has committed to expansion of the model throughout the entire country of Ecuador in its 2013 norms and through assignation of a dedicated budget for this expansion.
- The morale, cohesion, and working relationships of project personnel were impressive and certainly influenced the success of project implementation.
- As is true globally, turnover of health services staff is continual. The project experienced minimal (but some important) turn over of CHS staff turnover throughout the life of the project, and successfully identified replacement staff to ensure project implementation.
- Given their unique experience, conversations with the MOH are currently underway to engage select CHS staff and network participants to help adapt and guide the process for national implementation.

Financial Management [to be completed with the field staff and Lead Evaluator]

- The evaluator did not assess the financial management of the project other than to observe that the USAID investment and commitment to CSHGP has had maximum cost-effectiveness; for the USAID project investment and commitment, the MOH of Ecuador has assumed logistical, political and financial responsibility to nationally expand the Cotopaxi EONC Network model. The evaluator considers the decision and dedication of taking three years to establish this network and adaptation of quality improvement methods to encompass all levels of care, from community to hospital, was well worth the effort and has produced this impressive coordinated system of care. The network processes have, in its relative short implementation period, improved numerous outcomes (access and coverage, knowledge and quality of care), and have produced a demonstrable impact on improving newborn survival.

Logistics

- The EONC network specifically coordinated to effectively overcome logistical challenges.

Information Management

- The information system was systematic and innovative in its collecting, reporting, and using data at all project levels. The project conducted baseline special assessments, mini-survey focus groups, to develop effective strategies. The project created an innovative maternal death and near miss audit system to continuously identify service problems and solutions. The project and HQ staff, local-level partners, and the community continuously used data to review and have a clear understanding of project achievements and ongoing challenges. Data were reviewed periodically depending on the various indicators (monthly, quarterly, semi-annually and annually), and, as part of its quality improvement approach, used to identify areas of weakness and to innovate solutions to improve access to, use of and quality of care. Mechanisms were developed to make all monitoring and evaluation data user-friendly.
- However, one of the two key recommendations made is to engage a local statistician to develop a more analytically friendly database for its monitoring and evaluation of process and quality improvement, including outcomes, indicators. Such projects, with frequent monitoring to review and improve processes in an ongoing manner, produce large amounts of information that should not only be user but analytically friendly. This is a simple task that can be accomplished with widely and sometimes freely available software (MS Excel, MS Access, Epidata). The data base should auto-analyze the information or be developed with analytic programs that can be easily implemented in freeware. In addition, in future, it is advisable to complete all data collection activities at least 3 months prior to the initiation of a final project evaluation to permit analysis and interpretation prior to the initiation of the evaluation. Ensuring adequate time for advance data analysis and provision of final OR and KPC reports could greatly facilitate project evaluation.

Technical and Administrative Support

- Substantial CHS technical and administrative staff was provided to support the EONC network throughout the project. Given their unique experience, conversations with the MOH are currently underway to engage select CHS staff and network participants to help adapt and guide the process for national implementation.

Other Issues Identified by the Team

The evaluator would like to reiterate that the project has had enormous success. The MOH has assumed the financial and logistical commitment to a national expansion of the EONC Network model and is currently engaged in conversations with the CHS to engage select CHS staff and network participants to help adapt and guide the process for national implementation. .

ANNEX IV. WORK PLAN TABLE

Annex IV: Work Plan Table annotated per USAID guidelines

CHS USAID CSHGP Cotopaxi Essential Obstetric and Neonatal Care Project

***Note*: extracted from DIP and annotated by CHS**

Project Goal: Reduce maternal and neonatal morbidity and mortality in Cotopaxi province.
Project general objective: Improve household health promotion practices and utilization of a continuum of high-impact community and facility maternal newborn services provided as part of a coordinated network of CHWs, health facilities and social organizations.

EXPECTED OUTCOME #1: Increased availability / access to and utilization of a coordinated continuum of high-impact maternal newborn care provided as part of a network of community and facility services.

STRATEGIES	Goal	Activities **denotes project-wide activity	Objective Met	Activity Status
Project-wide Cross-cutting Activities relevant to all results		0.1. Coordination meetings with Cotopaxi MOH **	YES	Completed at start up; ongoing throughout life of project
		0.2 Coordination meetings with national MOH **	YES	Completed at start up; ongoing throughout life of project
		0.3. Plan and implement KPC household survey (baseline and end line) **	YES	
		0.4. Prepare & submit DIP **	YES	
		0.5. Initial focus group with TBAs **	YES	
		0.6. Workshop to develop detailed operational project work plan with MOH Cotopaxi **	YES	Completed at project start up- regularly reviewed and updated with Cotopaxi MOH
		0.7 Mid-term evaluation by external consultant **	YES	
		0.8 Final Evaluation by external consultant **	YES	
		0.9 OR (concept paper ; ongoing data collection/analysis; final report) **	YES	
1. Coordinate TBAs, health centers, and EBAS, for high-impact maternal and neonatal care.	**1.1** 100% of targeted project parishes have created a parish inter-institutional health care micro-network by end of project, led by parish health council.	**1.1.1** Develop technical proposal for creation of Parish-level Micro- Networks **	YES	Completed and manual developed to guide ongoing parish micro-network work and to orient new parishes
		1.1.3 Develop technical proposal for creation of Parish-level Health Plans **	YES	
		1.1.4 Visit to Cusubamba to learn about the Parish Council experience **	YES	

EXPECTED OUTCOME #1: Increased availability / access to and utilization of a coordinated continuum of high-impact maternal newborn care provided as part of a network of community and facility services.				
STRATEGIES	**GOALS %**	**ACTIVITIES** ****denotes project-wide activity**	**Objective Met**	**Activity Status**
		1.1.5 Meeting with NGOs from targeted county by year (FEPP, Plan Internacional) **	**YES**	
		1.1.6 Meetings with Cotopaxi MOH office and technical team from targeted county Health Area (by year) to introduce & review plan for parish Micro-Networks **	**YES**	
		1.1.7 Meetings in targeted parishes (by year) to begin creation of micro-networks among parish health providers (TBAs, MOH- SSC, among others)	**YES**	
	1.2 100% health micro-networks have a maternal and neonatal health plan	**1.2.1** Meetings with activated parish health councils (CONPAS) to create Parish maternal newborn health plans	**YES**	
	1.3 100% health micro-networks monitor health plan through monthly meetings	**1.3.1** Quarterly meetings to monitor implementation of parish health plan with CONPAS from each parish	**YES**	
2. Develop /strengthen communication and referral mechanisms among healthcare levels (community-level, 1st. and 2nd. level)	**2.1** Updated Provincial referral/counter-referral guidelines	**2.1.1** Provincial meeting with technical staff from health areas, Cotopaxi MOH Office, Provincial Hospital, and TBAs, to review and update the current Cotopaxi referral guide. (1 day) **	**YES**	
		2.1.2 Revise Provincial Referral and Counter- referral Guidelines in collaboration with Cotopaxi MOH **	**YES**	
	2.2 100% of county hospitals and parish micro-networks (targeted by year) use a common set of referral and counter-referral set of guidelines	**2.2.1** Meeting with county technical team (targeted by year) and County Hospital to train staff on revised referral guidelines. **	**YES**	
		2.2.2 Meetings with parish micro-networks (targeted by year) to train members on revised referral guidelines and processes.	**YES**	

EXPECTED OUTCOME #1: Increased availability / access to and utilization of a coordinated continuum of high-impact maternal newborn care provided as part of a network of community and facility services.				
STRATEGIES	**GOAL %**	**ACTIVITIES** ****denotes project-wide activity**	**Objective Met**	**Activity Status**
	2.3 100% targeted parish micro-networks have an established Obstetric and Neonatal Emergency Committee and Transportation Plan.	**2.3.1** Develop Guide aimed at parish micro-networks to implement obstetric and neonatal emergency plans and committees in selected communities. **	**YES**	
		2.3.2 Support Parish health council (CONPAS) emergency sub-committee to develop, implement and monitor maternal newborn emergency and transportation plans.	**YES**	
3. Improve interpersonal relations between health personnel and community health workers/TBAs	**3.1** 70% of TBAs (and Community Health Workers) interviewed rate interpersonal relations with health staff as "Good" or "Very Good"	**3.3.1** Sensitize parish providers (skilled & TBAs) on cross-cultural perspectives and improved interpersonal relations between facility and community providers during quarterly parish health council meetings and supervision visits (buen trato)	**YES**	
		3.3.2 Meetings to promote cultural exchange among TBAs, community health workers and health personnel within each parish Micro- Network (by year)	**YES**	
	3.2 70% of health personnel interviewed rate interpersonal relations with TBAs (and community health workers) as "Good" or "Very Good"	**3.2.1** Interviews to measure perceived quality and frequency of interpersonal communications between providers, TBAs and community health workers	**YES**	
		3.2.2 Disseminate interview results at quarterly Parish Health Council meetings	**YES**	

EXPECTED OUTCOME #1: Increased availability / access to and utilization of a coordinated continuum of high-impact maternal newborn care provided as part of a network of community and facility services.				
STRATEGIES	**GOAL %**	**ACTIVITIES** **denotes project-wide activity	**Objective Met**	**Activity Status**
4. Actively involve community organizations and local governments	**4.1** 100% of project parishes from targeted counties (by year) have formed a Parish Health Council (CONPAS), incorporating the Micro-Network, the Parish Board and Social Organizations.	**1.1.2** Develop technical proposal for creation of Parish Health Councils (CONPAS)	**YES**	
		4.1.1 Meeting with the provincial indigenous organization (MICC) to introduce the Project and reach agreement on methods and collaboration.**	**YES**	
		4.1.2 Meeting with targeted county leadership (by year) of indigenous grassroots organizations to introduce project and establish agreements for collaboration and project strategy. **	**YES**	
		4.1.3 Parish-level meetings with community leaders, parish boards, representatives of TBAs, community health workers and women's groups to create/strengthen the Parish Health Council.	**YES**	

EXPECTED OUTCOME # 2: Improved knowledge / demand for evidence-based community and facility-level maternal newborn services, including improved household health promotion practices.				
STRATEGIES	**GOALS %**	**ACTIVITIES**	**Objective Met**	**Activity Status**
1. Behavior Change Communication Activities	1.1 A top-ranked radio station transmits radio spots regularly	**1.1.1** Develop and produce Spanish and Kichwa radio spots for priority maternal newborn messages (birth preparedness/ emergency readiness; importance of pregnancy, birth and *early post-partum* checkups by trained TBA or skilled provider; danger signs for mother and newborn; family planning; breastfeeding and nutrition; rights- based intercultural care. **	**YES**	
		1.1.2 Identify top-ranked radio stations in the province **	**YES**	
		1.1.3 Contract services and sign agreements with selected radio stations **	**YES**	
		1.1.4 Dissemination of radio spots **	**YES**	
		1.1.5 Monitoring dissemination of radio spots**	**YES**	
	2.1 TV COLOR transmits television spots regularly; TV MIC [indigenous network] (depending on coverage)	**2.1.1** Develop and produce Spanish and Kichwa television spots on neonatal danger signs **	**YES**	
		2.1.2 Contract services and sign agreements with selected television stations.**	**NO**	**Because of limited reach of TV local station, it was decided to concentrate efforts on radio stations**
		2.1.3 Dissemination of television spots	**NO**	
		2.1.4 Monitoring the dissemination of television spots **	**NO**	
		2.1.5 Distribution of DVDs with educational messages in target parishes	**YES**	
	3.1Two parishes from each targeted county (by year) hold a "maternal newborn community fair each year	**3.1.1** Select Maternal – Neonatal Health topics and people responsible for different stands	**YES**	
		3.1.2 Design promotional material (posters, large-scale ads, for each area using a rights-based and intercultural approach, exhibition tents, 4 chairs for each tent) and preparation of satisfaction surveys **	**YES**	

EXPECTED OUTCOME # 2: Improved knowledge / demand for evidence-based community and facility-level maternal newborn services, including improved household health promotion practices.				
STRATEGIES	**GOALS %**	**ACTIVITIES**	**Objective Met**	**Activity Status**
		3.1.3 Coordination with other health care institutions.**	**YES**	
		3.1.4 Invite citizens to participate in the open- house fair using loudspeakers, fliers, letters, etc.	**YES**	**In coordination with the Provincial Health Direction of Cotopaxi**
		3.1.5 Hold open-house/community fair	**YES**	
		3.1.6 Asses community perception via a participant satisfaction survey	**NO**	**The technical team that completed this proposal decided that it was not necessary.**
2. Strengthen counseling activities carried out by health personnel, TBAs and community health workers, at facilities as well as in homes.	2.1 Set of pictorial counseling materials produced for key counseling themes	**2.1.1** Design, validate and print pictorial counseling job aids for use by TBAs and community health workers. **	**YES**	
		2.1.2 Create TBA kit (backpack, rain coat, counseling & other tools) to incentive TBAs **	**YES**	**Distributed to TBAs working with project, through MOH provincial office funding**
		2.1.4 Distribute kits to TBAs/CHWs through parish health councils in targeted counties (by year).	**YES**	
	2.2 Counseling training workshop for skilled providers in targeted counties conducted each year	**2.2.** Training on counseling for skilled providers.**	**YES**	
	2.3 Counseling training workshop for TBAs and CHWs in targeted counties conducted each year.	**2.3** Training on counseling skills and use of job aid with TBAs. **	**YES**	
3. Improve cultural competence of institutional health care services	3.1 Three parish health councils from each county targeted by year implement Cultural Adaptation of Care activities	**3.1.1** Initial introductory HACAP workshops in targeted county parishes.	**YES**	

EXPECTED OUTCOME # 2: Improved knowledge / demand for evidence-based community and facility-level maternal newborn services, including improved household health promotion practices.				
STRATEGIES	**GOALS %**	**ACTIVITIES**	**Objective Met**	**Activity Status**
	3.2 25% improvement in user satisfaction regarding cultural aspects of care	**3.2.1** Base line measurement through user satisfaction surveys in targeted county hospital and parish ambulatory health centers implementing cultural adaptation of care activities.	**NO**	
		3.2.2 User satisfaction measurements every six months, with students conducting exit interviews at hospitals **	**NO**	
		3.2.3 Data processing by the CQI team of the Canton Hospital, and the Intercultural Office staff at other units, 1 day every 6 months.**	**NO**	
4. Disseminate citizens right to quality health care	4.1 Radio spots on citizens right to quality health care regularly disseminated	**4.1.1** Production, validation and dissemination of radio spots on citizens rights to quality health care **	**YES**	
	4.2 90% of parish health councils implement information dissemination activities on citizen rights to quality health care	**4.2.1** Creation of bulletin boards about citizens rights **	**YES**	
		4.2.2 Talks on citizen rights aimed at users in health units **	**YES**	
		4.2.3 Socialization of citizen rights amid grassroots and community organizations **	**YES**	
	4.3 Targeted County councils (by year) conduct 1 round table with authorities and social organizations to publicly disseminate citizens rights to quality health care	**4.3.1** Coordinate with the Canton Council round table planning.**	**YES**	**The themes of health as a citizen's right has been recognized in the monthly meetings that have been held with the County Council.**
		4.3.2 Prepare invitations for participating social actors (mayor, health area director, representative of children and adolescents)**	**YES**	**The themes of health as a citizen's right have been recognized in the monthly meetings have been held with the County Council.**
		4.3.3 Conduct round table with 60 members of the Canton Council.	**YES**	**The themes of health as a citizen's right has been recognized in the monthly meetings have been held with the County Council.**
		4.3.4 Support remaining cantons for reactivation of Canton Councils	**YES**	

EXPECTED OUTCOME # 3: Improved quality of maternal-neonatal services provided as part of a coordinated network of facilities and community agents				
STRATEGIES	**GOALS %**	**ACTIVITIES**	**Objective Met**	**Activity Status**
1. Train TBAs for Basic EONC skills	1.1 100% of TBAs participating in project accredited by the MOH on community EONC skills and competences	**1.1.1** Baseline assessment of TBA knowledge, attitudes and practices **	**YES**	
		1.1.2 TBA training manual updated, using a rights-based and intercultural approach **	**YES**	
		1.1.3 Technical meeting to validate updated training manual **	**YES**	
		1.1.4 Community EONC training workshop (2 days) in targeted parishes (by year)**	**YES**	
		1.1.5 Follow-up and evaluation of Community EONC in every Micro-Network	**YES**	
2. Design/implement mechanisms for TBA supervision and CQI	2.1 TBA Supervision and CQI system designed and implemented in all parishes	**2.1.1** Design supervision methodologies and tools **	**YES**	
		2.1.2 2 Introductory workshop to train supervisors/providers and validate the TBA supervision system with staff from Micro- Networks **	**YES**	
		2.1.4 Assessment of Supervision System at each Micro-Network	**YES**	
3. Strengthen EONC knowledge / skills of health care workers	3.1 100% of EONC providers from targeted counties (by year) trained on core EONC skills and competences	**3.1.1** Identification of county health care providers to be trained (annual exercise in each new county)	**YES**	
		3.1.3 EONC training workshops for targeted county providers: MOH, IESS, SSC, private provider TBA's): topics to be covered include: Preeclampsia / Eclampsia management, Hemorrhage, Red Code, Neonatal Sepsis, Premature Birth, Neonatal CPR **	**YES**	
	3.2 100% of EONC providers from the Provincial Hospital possess EONC skills and competences	**3.2.1** Consultancy to develop proposal for creation of Intensive Neonatal Care Unit **	**YES**	
		3.2.2 Request presented by the Cotopaxi MOH Office before the MOH central level soliciting Human Resources for the provincial hospital ICU	**YES**	
		3.2.3 Training on EONC skills and competences for health professionals from the Provincial Hospital. **	**YES**	

EXPECTED OUTCOME # 3: Improved quality of maternal-neonatal services provided as part of a coordinated network of facilities and community agents				
STRATEGIES	**GOALS %**	**ACTIVITIES**	**Objective Met**	**Activity Status**
		3.2.4 Technical meetings to design graphic material with maternal neonatal technical content aimed at units that attend deliveries **	**YES**	
		3.2.5 Production and distribution of graphic material	**YES**	
4. **Strengthen supervision and QI mechanisms for health facilities**	4.1 100% of operative units report rapid improvement cycles 4.2 > 70% Average Compliance with management of Maternal and Neonatal Complications	**4.1.1** Facility-based assessment **	**YES**	
		4.1.2 QI training (inc. formation of facility CQI teams) integrated into clinical technical training **	**YES**	
		4.1.3 Provide support to the Cotopaxi MOH Office on Quality Management **	**YES**	
		4.2.1 Technical support visits for CQI teams that require them **	**YES**	
5. Design / implement community/users participation in CQI control	5.1 Established role of users/community representatives regarding quality improvement inside the CONPAS and Canton Health Council 5.2 75% of users/community representatives inside CONPAS and Canton Health Council trained to perform their role 5.3 Users/community representatives participate in 75% of CONPAS	**5.1.1** Develop proposal for the role of users/community representatives inside CONPAS, Canton Health Council and Free Maternity Law User Committees**	**YES**	
		5.1.2 Meeting to socialize and validate the proposal **	**YES**	
		5.2.1 Workshop to train user representatives on Quality Improvement oversight role **	**YES**	
		5.3.1 Follow-up and support meetings	**YES**	

EXPECTED OUTCOME # 4: Improved policy environment for coordination among community agents (TBAs), health care institutions and community/social organizations.				
STRATEGIES	**GOALS %**	**ACTIVITIES**	**Objective Met**	**Activity Status**
1. Promote a County-level EONC network that includes community and institutional services	**1.1** Functional County EONC Network consisting of three levels: community, institutional and inter-institutional. **1.2** Network Monitoring System designed and functioning	**1.1.1** Develop technical proposal for creation of a Canton-level EONC Network (including list of actors and monitoring system design) **	**YES**	
		1.1.2 Workshop with county maternal newborn providers to validate the proposal and create the Canton EONC Network **	**YES**	
		1.1.3 Quarterly coordination and monitoring meetings of County Network and parish health councils. **	**YES**	
2. Develop a subsystem for oversight and analysis of maternal and neonatal deaths	**2.1** Subsystem for Epidemiological Oversight of Maternal and Neonatal Health (VESMNN) and analysis of MM and NM, created and functioning in targeted counties by year and aligned with provincial monitoring.	**2.1.1** Expert meeting to design subsystem for epidemiological oversight of maternal and neonatal health **	**YES**	
		2.1.2 Subsystem for Epidemiological Oversight of Maternal and Neonatal Health backed by the Ministry of Public Health **	**YES**	
		2.1.3 Meeting to socialize the VESMNN subsystem with representatives from the Micro-Networks and actors from the Canton Network; creation of the Canton VESMNN Committee. **	**YES**	
	2.2 80% of MD and ND analyzed by the oversight subsystem, with corresponding technical-legal resolutions	**2.1.4** Monthly meetings of the Canton VESMN Committee to evaluate and monitor the subsystem and analyze MD and ND. **	**YES**	
3. Strengthen County and Parish-level Health Councils and Free Maternity User Committees	**3.1** Strengthened County Health Council (by targeted county each year)	**3.1.1** Participation in County Health Council meetings **	**YES**	
	3.2 Parish Health Councils (CONPAS) from 100% of project parishes in targeted counties reinforce Quality Management of Maternal and Neonatal Health	**3.2.1** Meetings to strengthen CONPAS Quality Management of Maternal and Neonatal Health **	**YES**	
		3.2.2 Creation of Parish Annual Operation Plan in 7 parishes from the canton	**NO**	**It was only completed in 2 parishes since there wasn't good participation from community leaders.**

EXPECTED OUTCOME # 4: Improved policy environment for coordination among community agents (TBAs), health care institutions and community/social organizations.				
STRATEGIES	**GOALS %**	**ACTIVITIES**	**Objective Met**	**Activity Status**
		3.2.3 Quarterly Parish Health council meetings will include review of parish health council support for CQI of parish maternal newborn services (TBA and facility) **	**YES**	**Exclusively in 2 parishes.**
	3.4 Organizational strengthening and training of County and parish User Committees	**3.4.2** Creation of Parish User Committees in targeted counties by year.	**YES**	**The parishes have User Committees.**
		3.4.1 Training workshop for canton and parish CUS on citizen oversight; dissemination of legal framework for EONC network; and Free Maternity Law (participation of Provincial CUS) **	**YES**	
4. Disseminate legal framework supportive of EONC Network	**4.1** Communication proposal to disseminate Legal Framework supportive of EONC Network	**4.1.1** 2 Meetings with County Health Council to develop communication strategy for dissemination of legal framework for universal access to quality maternal newborn care. **	**YES**	
	4.2 Regular dissemination of graphic and printed material about the Legal Framework for EONC Network in line with defined strategy (including media dissemination)	**4.2.1** Implementation of defined strategy including printing and /or reproduction of legal framework materials aimed at different audiences within EONC network at provincial, county and parish levels. **	**YES**	

ANNEX V. RAPID CATCH TABLE

ANNEX V. RAPID CATCH TABLE

Indicator	*Baseline Estimate (%)*	*MTE Estimate (%)*	*Final Estimate (%)*
% of mothers of children 0-23 months of age who had four or more antenatal visits from qualified personnel in a health unit and/or the community when they were pregnant with their youngest child	*68.4*	*N/A*	72.1
% of mothers of children 0-23 months of age who received at least two tetanus toxoid vaccinations before the birth of their youngest child	*42.0*	*N/A*	62.6
% of children 0-23 months of age whose birth was attended by skilled personnel	*72.1*	*N/A*	69.7
% of interviewees who use at least 1 modern contraceptive method	*46.1*	*N/A*	50.0
% of mothers of children 0-23 months of age who received postnatal care from an qualified health worker within two days of the birth of the youngest child	*25.1*	*N/A*	59.5
% infants aged <6 months who were exclusively breast-fed in the last 24 hours	*93.2*	*N/A*	88.6
% of children 6-23 months who have received a dose of vitamin A in the last 6 months: card verified or according to the mother's recall	*41.6*	*N/A*	53.8
% of children 12-23 months who have received a measles vaccination	*70.4*	*N/A*	88.8
% of children 12-23 months who received DTP1 at the time of the	*91.1*	*N/A*	71.6

study according to the immunization card or the mother's recall			
% of children 12-23 months who received DTP3 at the time of the study according to the immunization card or the mother's recall	*71.9*	*N/A*	68.1
% of children 0-23 months with diarrhea in the last two weeks who received oral rehydration salts (ORS) and/or an appropriate household solution	*54.2*	*N/A*	55.8
% of children 0-23 months with a chest cough and labored and/or difficulty breathing in the last two weeks who were taken to a qualified health provider	*69.3*	*N/A*	68.8
% of households with children 0-23 months who effectively treat their water	*64.9*	*N/A*	54.1
% of mothers of children 0-23 months who live in households with soap in the place where hands are washed	*82.9*	*N/A*	82.0

ANNEX VI. FINAL KNOWLEDGE, PRACTICE, AND COVERAGE REPORT

ANNEX VI. FINAL KNOWLEDGE, PRACTICE AND COVERAGE REPORT

REPORT ON THE ENDLINE

KNOWLEDGE, PRACTICE AND COVERAGE SURVEY

CHILD SURVIVAL PROJECT

Cotopaxi, Ecuador

Center for Human Services (CHS) in partnership with

the Ministry of Public Health (MOH) of Ecuador

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ABBREVIATIONS

APS-R	Updated Primary Health Care Strategy
BCC	Behavior change communications
CATCH	Core Assessment Tool on Child Health
CEPAR	Centro de Estudios de Población y Desarrollo Social (Spanish)
CHS	Center for Human Services
CHW	Community health worker
CSHGP	Child Survival and Health Grants Program
CODENPE	Nationalities and Peoples Development Council of Ecuador
EBAS	Basic Health Teams
ENDEMAIN	Maternal and Child Health Survey
EONC	Essential obstetric and newborn care
PNIPLA	National Family Planning and Tee Pregnancy Prevention Strategy
FP	Family planning
HCI	Health Care Improvement Project
IESS	Ecuadoran Social Security Institute
INEC	National Institute of Statistics and Censuses
KPC	Knowledge, practice, and coverage
LAMM	Latin American Initiative for the Reduction of Maternal Mortality
MNC	Maternal-neonatal care
MAIS-FCI	Integrated Health Care Model
MOH	Ministry of Public Health
OR	Operations research
QAP	Quality Assurance Project
QI	Quality improvement
SIISE	Integrated System of Social Indicators of Ecuador
TAPS	Primary healthcare technicians
TBA	Traditional birth attendant
URC	University Research Co., LLC
USAID	US Agency for International Development

EXECUTIVE SUMMARY

This report presents the results of an endline survey of the Child Survival Project implemented in Cotopaxi, Ecuador from 2009 to 2013. It compares those results to those of the baseline survey performed at the start of the project.

A. Objectives

The goal of the endline survey was to compile maternal and neonatal health data from project intervention sites through a knowledge, practice, and coverage (KPC) survey of households with children under 2 years of age. Information from the survey on the project's main indicators will enable stakeholders to compare 2010 baseline and 2013 endline data and contribute to the attainment of project goals and objectives.

Specific objectives:

- Obtain endline data on Child Survival Project indicators
- Measure endline Rapid CATCH USAID indicators (as required by USAID [US Agency for International Development])
- Obtain qualitative and quantitative endline data for Ecuador CSHGP operations (OR) research focused on an early postpartum home care intervention to measure OR results

B. Methods

The endline survey used the same questionnaire that had been developed for the baseline survey. Both surveys were planned in agreement with Cotopaxi Ministry of Public Health (MOH) officials who helped determine survey objectives, design, and implementation.

The questionnaire measures three sets of related indicators: 1) project-wide indicators, 2) project operations research indicators, and 3) USAID Rapid CATCH indicators. (Malaria and anthropometric indicators were excluded with USAID permission.)

An Ecuadorian consultant team was hired to assist the Center for Human Services (CHS) country team with tasks related to implementing the survey, particularly the sampling process; the selection and training of qualified, experienced data collectors; and data collection, entry, and analysis. This was the same consultant group that assisted the local CHS office with the baseline survey. The group had been chosen for its ample experience implementing nationwide maternal and neonatal health surveys.

The population targeted by the baseline and endline surveys included mothers of (living) children under 24 months of age who reside in rural areas of Cotopaxi province. The sample size was 412 households that were randomly selected from a sample of 49 "census sectors" (small geographical divisions) in six counties and 25 parishes.

C. Key Findings

The following are the principal findings of the endline survey relative to proposed project interventions and results:

Intervention/Result 1: Increased availability/access to and utilization of a coordinated continuum of high-impact maternal-neonatal care (MNC) services

Coverage of institutional antenatal and delivery care services increased, particularly for indigenous women. Indigenous women experienced an 8% increase in coverage of four or more prenatal care sessions and a 9% increase in the coverage of qualified delivery assistance.

About half the women in Cotopaxi deliver at home. The percentage of home visits increased among all interviewees, from 7.8% to 8.3%. However, among women who had home deliveries, home visits in the first 48 hours after birth fell by 5%, although visits within the first of week of delivery rose by 3%. This group also had a 4% increase in early postpartum home visits by skilled providers.

The number of women who stayed in the health facility two days after a facility birth rose by 5%; these women were potentially able to benefit from facility-level interventions to promote improved postpartum counseling and routine discharge care.

In summary, these results show the interventions' success in expanding the role of traditional birth attendants (TBAs) for providing community antenatal care. They also demonstrate that the interventions successfully promoted access to and the utilization of skilled care, particularly among indigenous women. Interventions to promote early postpartum home-based postpartum care for mother and newborn were less successful, particularly among the main target group: women who had home deliveries.

Intervention/Results 2 and 3: Improved knowledge/demand for evidence-based MNC services and improved household health practices (Result 2); Improved quality of MNC services (Result 3)

Knowledge among women on danger signs increased considerably, particularly relative to delivery and the postpartum period, where percentages increased more than 30 percentage points. Maternal health practices also improved. Women who undertook at least two birth preparedness actions rose by 10%.

Newborn health practices did not improve with respect to immediate breastfeeding, which fell by 3%, and to adequate umbilical cord care, which fell by 11%. However, the number of mothers who exclusively breastfed their child until the age of 6 months increased 23 percentage points.

The number of women who reported using a modern family planning (FP) method increased by 4% as did the number of women who believed they should wait at least two years before having another child.

Improvement of MNC quality is supported by the significantly larger number of women who reported having at least two tetanus vaccinations, which increased by 10%.

Results suggest project interventions focused on behavior change communications (BCC) at the community and facility level, which included strengthening TBA capacity for evidence-based counseling, were successful, although less so for the postpartum period: fewer women had knowledge of the optimum timing for postpartum care, and fewer implemented newborn health practices (immediate breastfeeding and adequate umbilical cord care). Data also evidence the positive outcome of interventions to integrate FP counseling and services into routine postpartum services at both the facility and home levels.

CHILD SURVIVAL PROJECT: ENDLINE KNOWLEDGE, PRACTICE AND COVERAGE SURVEY

I. BACKGROUND

A. Project Location and Background on the Area

The Child Survival Project is located in Cotopaxi, a central highland province in Guatemala administratively divided into seven cantons (Latacunga, La Mana, Pangua, Pujili, Salcedo, Saquisili, Sigchos) and 49 parishes, 38 of which are rural (map in Annex A). The project term is from September 2009 to September 2013.

According to the latest available national population and household census, Cotopaxi has 409,205 inhabitants, of whom 70% live in rural areas and 22% self-identify as indigenous[1]. The principal indigenous group is the Panzaleo, of the Kichwa nationality, whose members are organized into approximately 850 rural communities[2]. The majority of the population identify themselves as "mestizo", a term from the colonial period to refer to people with Spanish and indigenous ancestry.

Over 50% of Cotopaxi's labor force lives in rural areas, where the main economic activity is crop and livestock production (49.7%), followed by manufacturing (9.9%), commerce (12.1%), services (12.1%), transportation (4.5%), construction work (6%), financial services (1.1%), and other activities (4.4%)[3]. Crops (corn, wheat, barley) are produced in temperate weather zones, while cocoa, bananas, coffee, sugar cane, and flowers (the last for export) are cultivated in warmer subtropical areas. Much of the land is grasslands used for cattle/dairy production.

B. Characteristics of the Target Population

The project's target population comprises Cotopaxi women undergoing the pregnancy, labor, delivery, and the postpartum periods and newborns during the postpartum period. The 2010 population census indicates that the number of Cotopaxi children under age five was 34,858 and that of women of reproductive age was 104,358[4]. In 2011, the province registered 6649 live births[5].

[1] INEC (National Institute of Statistics and Censuses). VII Population Census and VI Household Census. 2010.
[2] http://www.conaie.org/nacionalidades-y-pueblos/pueblos/sierra/panzaleos/.
[3] Coordinating Ministry of Production, Employment, and Competitiveness. Production Transformation Territorial Agenda: Cotopaxi Province. May, 2011.
[4] INEC. VII Population Census and VI Household Census. 2010.
[5] INEC. Vital Statistics Yearbook: Births and Deaths. 2011.

Table 1: Population of Women of Reproductive Age and Children under 5 in Project Target Area		
Subpopulation	**Number**	**Percentage**
Infants: 0-11 months	7633	1.9%
Children: 0-59 months	42,491	10.4%
Children: 12-59 months	34,858	8.5%
Woman: 15-49 years	104,358	25.5%
Total	409,205	--

Source: INEC. VII Population Census and VI Household Census. 2010.

Data from 2010 vital statistics records set the maternal mortality rate for Cotopaxi at 133.5/100,000 live births[6]: among the highest rates in all Guatemalan provinces and greatly surpassing the national rate of 69.4/100,000 live births. Cotopaxi's infant mortality is 14.6/1000 live births, again much higher than the country rate of 10.9/1000 live births. Cotopaxi's neonatal mortality is also prominent at 7/1000 live births[7], only slightly lower than the national rate of 8.3/1000 live births.

C. Social, Economic, and Health Conditions in the Project Area

During the last three decades, Cotopaxi's illiteracy rate has fallen dramatically, from 23.7% in 1990 to 13.6%[8] in 2010. The average number of years of schooling is 7.7[9].

The province's percentage of people living in poverty based on the Unsatisfied Basic Needs index is 75.1%[10], among the highest in the country. This figure increases drastically for the province's indigenous population, 96.4%[11] of whom live in poverty.

Data gathered by the Coordinating Ministry of Social Development situates Cotopaxi as one of the three central highland provinces that have the highest percentages of chronic malnutrition in children under age five (Cotopaxi's is 42.6%)[12], which significantly exceeds the corresponding nationwide percentage (25.8%). In Pujilí, a canton predominantly comprised of an indigenous and rural population, chronic malnutrition in children under five is 63%[13], the highest among Cotopaxi's cantons.

Mortality of under-five children in Cotopaxi is mainly caused by diseases of the respiratory system (20.9%), such as pneumonia; conditions originating in the perinatal period (13.2%), which include diseases related to short-term gestation and low birth weight; and intestinal

[6] INEC. Vital Statistics Yearbook: Births and Deaths. 2010. (Ratio calculated based on the adjusted number of 2010 births).
[7] INEC. Vital Statistics Yearbook: Births and Deaths. 2010. (Rate calculated with unadjusted number of 2010 births).
[8] INEC. VII Population Census and VI Household Census. 2010.
[9] Ibid.
[10] SIISE (Integrated System of Social Indicators of Ecuador). (Index calculated based on 2010 census data).
[11] Ibid.
[12] Coordinating Ministry of Social Development. Map of Chronic Malnutrition in Ecuador. Quito, 2010.
[13] Ibid.

infectious diseases (10.9%)[14]. Causes of neonatal mortality include conditions originating in the perinatal period (63.9%), congenital malformations (13.1%), and diseases of the respiratory system (6.6%)[15].

In 2010, nationwide direct causes of maternal mortality[16] included other maternal diseases classifiable elsewhere but complicating pregnancy, childbirth, and the puerperium (18.3%); gestational hypertension with significant proteinuria (17.8%); eclampsia (15.3%); and postpartum hemorrhage (9.9%). In Cotopaxi, the main recorded causes of maternal deaths included gestational hypertension with significant proteinuria, abnormalities of forces of labor, and retained portions of placenta and membranes, without hemorrhage[17].

The main provider of healthcare services in Cotopaxi is the MOH, as shown in Table 2, updated with 2011 data.

Table 2: Health Facilities in Project Target Area

FACILITY TYPE	*MOH*	*IESS*	*IESS Rural Social Security*	*Various Ministries **	*Municipal*	*Private*	*Total*
General Hospital	1	1					2
Basic Hospital	5			1			6
Health Centers and Subcenters	46						46
Health Units (Puestos de Salud)	17						17
Ambulatory Clinics		5	39	7		2	53
Clinics w/ Hospitalization					1	17	18
TOTAL	69	6	39	8	1	19	142

Source: INEC, Yearbook of Health Resources and Activities, 2011.
*Notes: * Justice Ministry, Defense Ministry, Education Ministry. "IESS" stands for Ecuadorian Institute for Social Security.*

Most Cotopaxi inhabitants (66.8%[18] of men and 72.9% of women) lack health insurance coverage from IESS or private vendors.

Home births are significantly under-reported in MOH-managed vital records, which depend on civil registry entries. (Home births are often not recorded in civil registries.) The most accurate estimates of home-based births are drawn from the 2004 National Maternal and Child Health Survey (ENDEMAIN). It found that in 2004, 46.5% of Cotopaxi women gave

[14] SIISE. 2011.
[15] Ibid.
[16] INEC. Vital Statistics Yearbook: Births and Deaths. 2011.
[17] INEC. Vital Statistics Yearbook: Births and Deaths. 2010.
[18] INEC. VII Population Census and VI Household Census. 2010.

birth at home attended by a TBA or midwife[19]. Among indigenous women, that percentage was 71.4%[20]. The primary reasons women gave in the 2004 survey for preferring to give birth at home include "custom" or tradition (56.5%) and greater intimacy and confidence in family and the midwife (47.1%)[21].

Overall, Cotopaxi has high maternal, child, and neonatal mortality rates, rates that can be linked to low demand for and limited access to qualified care, particularly at the community level, along with deficiencies in the quality and cultural responsiveness of care provided in health facilities.

D. National Standards/Policies Regarding Maternal and Child Health

During the last two decades, Ecuador has developed several policies and strategies related to maternal and child care, the most groundbreaking of which was the 1994 "Law on the Provision of Free Maternity Services and Child Care." It focuses on reducing maternal and child mortality through improved nationwide coverage of quality maternal and child care. A decade later, the country created the "Sexual and Reproductive Health Policy" with its accompanying Action Plan (2005). The latter reflects a guiding principle of reducing maternal mortality through health services that offer essential obstetric and skilled delivery care, among other strategies. The national government also issued the 2007–2010 National Development Plan that set as national goals the reduction of infant mortality by 25%, neonatal mortality by 35%, maternal mortality by 30%, and teenage pregnancy by 25%.

In 2008 the MOH published the "National Plan for the Accelerated Reduction of Maternal and Neonatal Mortality" along with an accompanying package of "norms" (standards) for delivery of evidence-based maternal and child care in all public health facilities. This measure calls for the creation of essential obstetric and newborn care (EONC) networks. The Ministry also implemented a process for quality improvement of maternal and child care that relies on evidence-based standards that are to be systematically monitored, measured, and reported by all facilities.

During this same period, the MOH sought to discuss and define the role of TBAs within the national health system. Participating in that discussion were health authorities, representatives of social and ethnic organizations, and traditional healthcare providers. The result was several documents and even proposed legislation. Despite these advances, no clear guidelines are in place from the MOH regarding TBAs' provision of maternal and child care in the public health system.

In 2008, the MOH started implementing a new approach to healthcare availing"basic health teams" (EBAS) within the framework of the New Healthcare Model that was to be implemented. EBAS teams comprised a general physician, nurse, and nurse auxiliary and operated out of a health center, since their primary responsibility was to extend health

[19] CEPAR (Centro de Estudios de Población y Desarrollo Social). National Maternal and Child Health Survey (ENDEMAIN). Quito, 2004,. pp. 175.

[20] SIISE. Nationalities and Peoples Development Council of Ecuador. First National Survey of the Nationalities and Peoples of Ecuador (ECONAP). 2002.

[21] CEPAR, op cit, pp. 224, 226.

coverage through home visits. In 2012, the MOH, determined to strengthen the first level of care, modified the Integrated Health Care Model (MAIS-FCI) by 1) adopting a new approach oriented toward "family, community, and cross-cultural" care and 2) incorporating the Updated Primary Health Care Strategy (APS-R). This strategy included transforming EBAS teams into Integrated Health Care Teams. These teams comprise a physician, family nurse, psychologist, dentist, and midwife[22]. New teams also include Primary Health Care Technicians (TAPS)[23], who are community members chosen to receive basic technical training and to 1) conduct community outreach activities for health promotion, 2) collect data for family information cards, and 3) notify the team of potential health risks. TAPS are also in charge of coordinating activities with community leaders, TBAs, and other community traditional healthcare attendants[24].

In 2012–13, the MOH implemented two important policies that contribute to better maternal and child health. One is the Nutrition Action Program, which seeks to eradicate chronic malnutrition and anemia in children under one year by 2015 and to reduce by 50% the prevalence of anemia in children under age five by 2013. Program interventions include strengthening nutrition for pregnant women, particularly in rural areas. The other is the National Family Planning and Teen Pregnancy Prevention Strategy, which includes among its main objectives the reduction of unplanned pregnancies and associated maternal mortality[25]. Several activities have been undertaken to reach these goals.

E. Overview of the Child Survival Project: Goals, Objectives, and Intervention Activities

University Research Co., LLC (URC) and its nonprofit affiliate, CHS, began to work in Ecuador in 1995. Since then it has worked in support of the MOH to improve the quality of healthcare at the national level, particularly in the area of maternal health, through the Quality Assurance Project (QAP) and the Health Care Improvement project (HCI), both funded by USAID.

After the turn of the millennium, CHS-Ecuador launched the Latin American Initiative for the Reduction of Maternal Mortality (LAMM). Starting in 2006, LAMM undertook activities to overcome cultural barriers to the use of skilled birth attendants. It particularly emphasized interventions to adapt health services to be more culturally responsive. For example, it urged public healthcare providers to allow women to choose a birthing position.

Over the course of the millennium's first decade, URC/CHS-Ecuador developed a profound understanding of the country's health problems, particularly in the area of maternal and neonatal health. The Cotopaxi Child Survival Project was designed based on the work performed by the QAP and HCI projects to provide support for the MOH in solving problems related to maternal and neonatal mortality in Cotopaxi.

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[22] The dentist, psychologist, and midwife participate on the team if population size and health unit complexity warrant it.
[23] One TAPS is assigned for every 3000 residents in urban populations and for every 1500 residents in rural populations.
[24] MOH. Manual of the National Health System Integrated Health Care Model with a Family, Community and Cross-cultural Approach (MAIS-FCI). Quito, 2012.
[25] MOH. Summary of the National Family Planning and Teen Pregnancy Prevention Strategy (ENIPLA). Document for Journalists. Quito, 2012

The project's partner is the MOH through its Cotopaxi Provincial Health Directorate. The MOH is the principal provider of the country's health services, particularly for the poorest segments of the population, which typically have little access to the health services provided by IESS or the private sector. Over many years, URC/CHS-Ecuador has maintained a positive and fruitful collaboration with the MOH.

The primary Child Health Survival project goal is to help reduce maternal and neonatal mortality and morbidity in Cotopaxi. To do so, the project's overarching strategy is to improve household health promotion practices and families' access to and use of a continuum of high-impact MNC services, at both the household and institutional level, provided as part of a coordinated network of community health workers (CHWs), health facilities, and social organizations.

The project proposes an outcomes framework of four key interventions and their respective strategies:

1. **Better availability of/access to a continuum of high-impact MNC, at both the household and facility levels.**

    1.1. Strengthen high-impact community maternal and neonatal care integrating TBAs, health centers, and EBAS.
    1.2. Strengthen/develop communication and referral mechanisms among the different levels of care (community, primary, secondary).
    1.3. Improve relations between facility-based health personnel and CHWs/TBAs.
    1.4. Engage community organizations.

2. **Better understanding of/demand for evidence-based community and facility MNC services, including improved household health promotion practices.**

    2.1. Develop communication activities for behavior change.
    2.2. Strengthen counseling activities, both at facilities and at home, by skilled providers and trained CHWs/TBAs.
    2.3. Improve the cultural competency of institutional health services.
    2.4. Publicize the citizen's right to quality healthcare.
    2.5. Develop mechanisms to enable citizens to exercise this right.

3. **Improved quality of MNC services provided as part of a coordinated network of CHWs and facilities.**

    3.1. Train TBAs in basic EONC.
    3.2. Formulate/implement mechanisms to oversee TBAs and the continuous quality improvement (QI) of TBA systems/processes.
    3.3. Strengthen health workers' EONC knowledge/skills.
    3.4. Formulate/implement mechanisms to oversee facilities and continuous QI of their systems/processes.

3.5. Organize an EONC network for the different levels of care.
3.6. Develop/implement community/participant involvement in QI follow-up.

4. Improved policy environment for coordination among CHWs, healthcare institutions, and community/social organizations.

4.1. Promote a provincial EONC network of community and facility-based services.
4.2. Develop a sub-system for surveillance and analysis of maternal/neonatal health.
4.3. Strengthen canton health committees and the Law on Free Maternity and Infant Care.
4.4. Establish a legal framework favorable to the health network.

F. Objectives of the Knowledge, Practice, and Coverage Survey

The endline survey sought to compile maternal and neonatal health data from Child Survival Project intervention sites through a knowledge, practice, and coverage (KPC) survey of households with children under 2 years. Information from the survey on main project indicators will be used to compare 2010 baseline data against the 2012 endline data, enabling an analysis of the extent to which project goals and objectives have been achieved.

The survey objectives were identified as:

- Obtain endline data on Child Survival Project indicators
- Measure endline Rapid CATCH indicators (as required by USAID)
- Obtain qualitative and quantitative endline data for Ecuador CSHGP operations research focused on the early postpartum home care intervention to measure OR results

II. PARTNERSHIP BUILDING

A. Roles of Local Partners/Stakeholders in Designing the Survey

The MOH Cotopaxi Health Directorate fully participated in the process of designing the May 2010 KPC survey to gather baseline data. At the time, the provincial Director and members of the Standards Implementation Process and the Cross-Cultural Health Sub-Process helped with sample design, recruitment of interviewers, review of indicators, and overall survey review. In addition, the role of MOH Health Directorate officials was crucial to promote the survey and facilitate access to target communities.

Conducted in July 2013, the endline survey had Health Directorate support, although officials did not directly participate in planning meetings and activities for survey implementation, largely due to the fact that the endline survey replicated much of the baseline data-gathering process. CHS re-hired the consultant firm that had implemented the baseline. The firm has vast experience conducting maternal and child health household surveys in Ecuador and was familiar with survey contents, the target population, and fieldwork dynamics.

As it had done for the baseline, the consultant team performed the following activities as part of its technical assistance:

- Establishing sample size, distribution, and number of questionnaires per "census sector"[26]
- Obtaining sector maps of the survey area
- Formatting and standardizing the questionnaire
- Developing the data entry program
- Selecting and training experienced supervisors and interviewers
- Collecting data based on the sample size and distribution at the parish and canton levels
- Implementing quality control procedures
- Entering data
- Creating frequency tables and required reports (statistical charts)

III. METHODS

A. Questionnaire Development

The endline survey used the same questionnaire as the baseline survey (Annex B). The questionnaire was an adaptation of three independent maternal and neonatal health survey tools, modified and edited by CHS Ecuador and Bethesda teams.

B. KPC Indicators

The endline questionnaire enabled interviewers to collect data on 37 indicators that comprise three major categories of data required to monitor and measure project implementation: 1) project-wide indicators, 2) operations research indicators, and 3) required USAID Rapid Core Assessment Tool on Child Health (CATCH) indicators. The indicators, their sources, and corresponding survey question numbers are in Table 3.

[26] A census sector is the minimal geographical division used by INEC for inhabitant registration purposes.

Table 3. Indicator Definitions and Data Sources, by Intervention					
Intervention	**No.**	**Indicator**	**Numerator/Source**	**Denominator/Source**	**Question No.**
Use of services: antenatal care	1	% of mothers of children 0-23 months of age who had four or more antenatal visits from qualified personnel, in the community and/or a health unit, when they were pregnant with their youngest child	# of mothers with children 0-23 months of age who had at least four antenatal visits when they were pregnant with their youngest child	Total # of mothers with children 0-23 months of age in the study	3.20, 3.4
	2	% of mothers with children 0-23 months of age who did not undergo antenatal checkups	# of mothers with children 0-23 months of age who did not undergo antenatal checkups	Total # of mothers with children 0-23 months of age in the study	3.1 NO
	3	% of mothers with children 0-23 months of age who received counseling on danger signs when they were pregnant with their youngest child	# of mothers with children 0-23 months of age who received counseling on danger signs when they were pregnant with their youngest child	Total # of mothers with children 0-23 months of age in the study	3.9 – YES 3.19 – YES
Use of services: delivery	4	% of children 0-23 months of age whose birth was attended by skilled personnel	# of children 0-23 months of age whose birth was attended by skilled personnel	Total # of mothers with children 0-23 months of age in the study	4.3 – 1, 2, 3
	5	% of mothers of children 0-23 months of age who gave birth in a health facility	# of mothers of children 0-23 months of age who gave birth in a health facility	Total # of mothers with children 0-23 months of age in the study	4.2 – 1 through 6
	6	% of mothers of children 0-23 months of age who did not give birth in a health facility for cultural reasons	# of mothers of children 0-23 months of age who did not give birth in a health facility for cultural reasons	Total # of mothers with children 0-23 months of age in the study who did not give birth in a health facility	4.5 – 3,5, 6,

	13	% of interviewees who recognize at least 2 danger signs during the postpartum period	# of interviewees who recognize at least 2 danger signs during the postpartum period	Total # of interviewees	5.9 – 18
	14	% of interviewees who are familiar with maternal and newborn care services in their parish or canton	# of interviewees who are familiar with maternal and newborn care services in their parish or canton	Total # of interviewees	3.15 – YES
	15	% of interviewees who recognize at least 2 danger signs in newborns	# of interviewees who recognize at least 2 danger signs in newborns	Total # of interviewees	5.8 – 19
	16	% of interviewees who use at least 1 modern contraceptive method	# of interviewees who use at least 1 modern contraceptive method	Total # of interviewees	6.1 – 1 6.2 – 110
	17	% of interviewees who believe that their first postnatal checkup should be done within two days	# of interviewees who believe that their first postnatal checkup should be done within two days	Total # of interviewees	5.19 – 1
	18	% of interviewees who believe that they should wait at least two years to have another child	# of interviewees who believe that they should wait at least two years to have another child	Total # of interviewees	6.3 – 2, 3
	19	% of mothers of children 0-23 months of age who received at least two tetanus toxoid vaccines before the birth of their youngest child	# of mothers of children 0-23 months of age who received at least two tetanus toxoid vaccines before the birth of their youngest child	Total # of mothers with children 0-23 months of age in the study	3.21 – YES 3.22 – # 2 3.23 – YES 3.24 – # 2
	20	% of children 6-23 months who have received a dose of vitamin A in the last 6 months: card verified	# of children 6-23 months of age who have received a dose of vitamin A in the last 6	Total # of children 6-23 months of age in the study	AGE>6 months 6.14 – YES

		or according to the mother's recall	months (card verified or according to the mother's recall)		6.15 – YES 6.17 DATE
Use of other services: required Rapid CATCH not specific to project and ORT	21	% of children 12-23 months of age who have received a measles vaccination	# of children 12-23 months of age who have received a measles vaccination at the time of the interview according to the card or the mother's recall	Total # of children 12-23 months of age in the study	AGE>12 months 6.17 6.21
	22	% of children 12-23 months who received DTP1 at the time of the study according to the immunization card or the mother's recall	% of children who received DTP1 at the time of the study according to the immunization card/child health booklet or the mother's recall	Total # of children 12-23 months of age in the study	AGE>12 months 6.17a
	23	% of children 12-23 months who received DTP3 at the time of the study according to the immunization card or the mother's recall	% of children who received DTP3 at the time of the study according to the immunization card/child health booklet or the mother's recall	Total # of children 12-23 months of age in the study	AGE>12 months 6.17c
	24	% of children 0-23 months with a chest cough and labored and/or difficulty breathing in the last two weeks who were taken to a qualified health provider	# of children 0-23 months with a chest cough and labored and/or difficulty breathing in the last two weeks who were taken to a qualified health provider	Total # of children with a chest cough in the last two weeks	6.24 – YES 6.25 – YES 6.26 – YES 6.27 – 1, 2
Healthy practices	25	% of children 0-5 months who were exclusively breastfed during the last 24 hours	# of children 0-5 months who have drunk breast milk in the past 24 hours AND who have not drunk other liquids in the past 24 hours AND who have not received any other food or liquid in the past 24 hours	Total # of children 0-5 months of age in the study	5.26

	26	% of children 0-23 months who were breastfed immediately	# of children 0-23 months who were breastfed immediately	total # of children 0-23 months of age in the study	4.10 – 87 5.24 – 1
	27	% of infants and small children 6-23 months fed according to a minimum of appropriate feeding practices	# of infants and small children 6-23 months fed according to a minimum of appropriate feeding practices	Number of children 6-23 months of age in the study	AGE>6 months 6.5 6.13
	28	% of children 0-23 months with diarrhea in the last two weeks who received oral rehydration salts (ORS) and/or an appropriate household solution	# of children 0-23 months with diarrhea in the last two weeks AND who received oral rehydration salts (ORS) and/or an appropriate household solution	Total # of children 0-23 months of age who have had diarrhea in the last two weeks	6.22 – YES 6.23 – a, b, c
	29	% of households with children 0-23 months who provide effective water treatment	# of households of mothers with children 0-23 months who provide effective water treatment	Number of households with children 0-23 months of age in the study	6.28 – YES 6.29 – 3,4,5
	30	% of mothers of children 0-23 months who live in households with soap in the place where hands are washed	# of mothers of children 0-23 months who live in households with soap in the place where hands are washed	Number of households with children 0-23 months of age in the study	6.31 – 1, 2
	31	% of mothers of children 0-23 months who do not need the influence or presence of other persons to make the decision to go to a health facility in the event of any complications	# of mothers of children 0-23 months who do not need the influence or presence of other persons to make the decision to go to a health facility in the event of any complications	Total # of mothers of children 0-23 months in this study who experienced any complications during their last delivery	4.18
	32	% of mothers of children 6-23 months who exclusively breastfed their children until the age of 6 months	# of mothers of children 6-23 months who exclusively breastfed their children until the age of 6 months	total # of mothers with children 6-23 months of age in the study	AGE>6 months 5.25

Intention to use	33	% of mothers of children 0-23 months who would seek qualified care upon experiencing a complication during pregnancy	# of mothers of children 0-23 months who would seek qualified care upon experiencing a complication during pregnancy	Total # of interviewees	3.28 – YES
	34	% of mothers of children 0-23 months who would seek qualified care upon experiencing a complication during delivery	# of mothers of children 0-23 months who would seek qualified care upon experiencing a complication during delivery	Total # of interviewees	4.19 – YES
	35	% of mothers of children 0-23 months who would seek qualified care upon experiencing a complication during the postpartum period	# of mothers of children 0-23 months who would seek qualified care upon experiencing a complication during the postpartum period	Total # of interviewees	5.17 – YES
	36	% of mothers of children 0-23 months who would seek qualified care if a complication occurred in a newborn	# of mothers of children 0-23 months who would seek qualified care if a complication occurred in a newborn	Total # of interviewees	5.20 – YES
	37	% of mothers of children 0-23 months that would recommend the hospital or health center as a place to give birth	# of mothers of children 0-23 months that would recommend the hospital or health center as a place to give birth	Total # of women who gave birth in a hospital or health center	4.4 – YES

C. Sampling Design

The endline survey used the sample design created for the baseline study to enable comparisons between initial and final project results. The sample was drawn from a target population of mothers with a (living) child under 2 years residing in a rural Cotopaxi parish.

The sampling frame relied on data from INEC's 2010 Ecuador Population and Household Census, which determines population size by canton, parish, zone, and census sector. La Maná canton was excluded from the sample because it had not been selected for interventions.

The number of Cotopaxi households with children under 2 years is 13,395, with an estimated total of 14,122 children under the age of 2. This means that based on these data, finding a child under 2 years in a household had a probability of 15.3%, while the probability of finding a household with at least one child under 2 was 14.6%.

The sample size was calculated to be representative of the province as a whole, with a confidence level of 95% and error margin (precision level) of 5%. The following sample size formula for proportions was used:

$$\frac{N \quad Z^2_{\frac{\alpha}{2}} \quad \pi(1-\pi)}{d^2(N-1)+Z^2_{\frac{\alpha}{2}}\,\pi(1-\pi)}$$

Where:

N = population size (number of households with children under 2 years)
Z = quantile related to confidence level (1.96)
α = level of significance (5%, equivalent to 95% confidence level)
π = proportion of individuals with targeted behaviors, a priori assumed to be 0.5
d = maximum allowed error level, lower than 5%

The result was a minimum sample of 400 homes with children under 2 years (400 includes a 20% increase calculated in anticipation of survey non-responses).

The study area comprises 1348 census sectors. Estimates indicate an average of 10 households per sector has a child under the age of 2. We chose 49 census sectors to reach the calculated sample size, including oversampling.

Census sectors were stratified, and simple random sampling was used to choose one sector from each stratum. The sample distribution, which includes the number of surveys per selected canton, parish, and sector, is presented in Table 4.

Table 4: Sample Distribution						
Canton	**Parish**	**Zone**	**Census Sector**	**Strata**	**Households w/ children <2**	**Minimum sample**
Latacunga	Latacunga	999	6	1	27	9
		1	3	2	20	7
		1	4	3	17	6
		14	1	4	28	10
		14	4	5	21	7
		14	3	6	24	8
		5	5	7	20	7
		12	2	8	32	11
		7	2	9	18	6
		7	7	10	19	7
		18	8	11	21	7
		2	2	12	20	7
	Belisario Quevedo	999	21	13	18	6
	Guaytacama	999	7	14	24	8
		924	1	15	31	11
	Mulaló	999	4	16	20	7
	Poaló	999	9	17	21	7
	Pastocalle	999	20	18	20	7
		999	19	19	26	9
	Tanicuchí	999	14	20	20	7
	Toacaso	999	5	21	31	11
		1	1	22	19	7
Pangua	El Corazón	999	21	23	20	7
	Moraspungo	999	10	24	18	6
		999	32	25	24	8
Pujilí	Pujilí	999	62	26	25	9
		999	31	27	17	6
		999	11	28	17	6
		2	4	29	48	16
	Angamarca	999	3	30	31	11
	Guangaje	999	12	31	28	10
	Pilaló	1	1	32	19	7
	Zumbahua	999	44	33	34	12
		999	7	34	28	10
Salcedo	Salcedo	999	82	35	12	4
		999	17	36	17	6
		999	18	37	27	9
		3	3	38	25	9
	Cusubamba	999	21	39	34	12
		999	18	40	18	6
	Mulalillo	999	15	41	23	8
	Mulliquindil	1	4	42	18	6
	Pansaleo	1	1	43	18	6
Saquisilí	Saquisilí	2	9	44	20	7
	Canchagua	1	1	45	27	9
	Cochapamba	999	2	46	19	7
Sigchos	Chugchilán	999	13	47	34	12
		999	16	48	42	14
	Isinliví	999	12	49	15	5
Total					**1155**	**400**

Once sectors were selected, they were "swept," meaning data collection staff visited all sector households to identify those with children under age 2 years until the desired number of households per sector was reached.

The process of administering surveys was coordinated by the supervisors, who had extensive experience in administering household surveys and in reading and using INEC census maps.

D. KPC Training

The consultant team selected the necessary number of survey supervisors and data collectors with an adequate profile and high level of experience in conducting surveys. Training sessions were held in Quito July 1 and 2, with the participation of 11 interviewers, including men and women. The training was facilitated by three consultant team coordinators. The training agenda (Annex E) covered such topics as the general study framework, structure of the questionnaire tool, and procedures to administer the survey. The training also had a session simulating questionnaire administration by interviewers through role-play.

In addition to this formal training and in order to further familiarize them with questionnaire contents, sections sequence, and the flow of questions, interviewers formed into teams and administered the questionnaire to (real) homes selected on the basis of survey objectives. This "outside the classroom" strategy helped to achieve training objectives and served as a mechanism to identify errors and identify corrections that could be made immediately, additionally helping clarify certain questionnaire concepts.

E . Data Collection and Quality Control Procedures

Data collection started July 3 and concluded July 15 and included only homes with children under age two. Two field teams formed, each having four data collectors and one supervisor. Each team was assigned a similar workload according to the sample size and distribution at canton and parish levels (Annex B).

Data collection was successfully completed as planned and within the established time frame. In every case, women who were approached were disposed to be helpful and freely agreed to be interviewed. No interviews were refused or cancelled during fieldwork. Final survey coverage at the canton and parish levels is in Annex B.

Quality data gathering was assured through activities performed by senior members of the consultant organization, who closely monitored field operations and the supervisors' tasks. The supervisors in turn contributed to data quality control through their assigned activities, such as managing field operatives' workloads, using census maps to determine routes, and reviewing completed questionnaires.

F. Data Management and Analysis

Collected data were entered into the CsPRO program, an easy-to-use software designed to enable fast data entry of survey questionnaires and to allow users to later export data for use with other software such as SPSS and Excel. CsPRO had been used for baseline data entry.

Data capturing and processing were implemented July 16–28 by the consultant team, who carried out the following activities:

- Data coding and entry by staff who performed this work under supervision of an IT systems engineer. All collected data were entered and validated.
- Creating frequency lists of survey variables, including the necessary re-coding for data processing and report production.
- Creating general frequency tables and reports, as well as frequency tables and reports according to mother's age and education level.

IV. RESULTS

A. Tables of Results and Graphics for Principal Findings

The project, OR, and Rapid CATCH baseline indicators measured during the endline survey are presented in Table 5.

Table 5. Project, Operations Research, and Rapid CATCH Indicators					
No.	**Indicators**	**Numerator**	**Denominator**	**Percentage**	**Confidence Interval**
1	% of mothers of children 0-23 months of age who had four or more antenatal visits from qualified personnel in a health unit and/or the community when they were pregnant with their youngest child	297	412	72,1	6.1
2	% of mothers with children 0-23 months of age who did not undergo antenatal checkups	19	412	4,6	
3	% of mothers with children 0-23 months of age who received counseling on danger signs when they were pregnant with their youngest child	275	412	66,7	
4	% of children 0-23 months of age whose birth was attended by skilled personnel	287	412	69,7	6.6
5	% of mothers of children 0-23 months of age who gave birth in a health facility	285	412	69,2	
6	% of mothers of children 0-23 months of age who did not give birth in a health facility for cultural reasons	48	127	37,8	
7	% of mothers of children 0-23 months of age who received postnatal care from an qualified health worker within two days of the birth of the youngest child	245	412	59,5	
8	% of mothers of children 0-23 months of age who received a postnatal visit from a traditional birth attendant (TBA) within two days of the birth of the youngest child	17	71	24	

9	% of children 0-23 months of age who were attended by qualified personnel during their first 48 hours	245	412	59.5	6.8
10	% of mothers of children 0-23 months of age who received care/counseling within two days of the birth of their youngest child	228	412	55,3	
11	% of interviewees who recognize at least 2 danger signs during pregnancy	286	412	69,4	
12	% of interviewees who recognize at least 2 danger signs during delivery	364	412	88,3	
13	% of interviewees who recognize at least 2 danger signs during the postpartum period	384	412	93,2	
14	% of interviewees who are familiar with the maternal and newborn care services in their parish or canton	354	412	85,9	
15	% of interviewees who recognize at least 2 danger signs in newborns	399	412	96,8	
16	% of interviewees who use at least 1 modern contraceptive method	206	412	50	6.8
17	% of interviewees who believe that their first postnatal checkup should be done within two days	67	412	16,3	
18	% of interviewees who believe that they should wait at least two years to have another child	369	412	89,6	
19	% of mothers of children 0-23 months of age who received at least two tetanus toxoid vaccinations before the birth of their youngest child	223	356	62.6	6.8

20	% of children 6-23 months who have received a dose of vitamin A in the last 6 months: card verified or according to the mother's recall	180	334	53,8	7.6
21	% of children 12-23 months who have received a measles vaccination	206	232	88,8	5.7
22	% of children 12-23 months who received DTP1 at the time of the study according to the immunization card or the mother's recall	166	232	71,6	8.2
23	% of children 12-23 months who received DTP3 at the time of the study according to the immunization card or the mother's recall	158	232	68,1	8.5
24	% of children 0-23 months with a chest cough and labored and/or difficulty breathing in the last two weeks who were taken to a qualified health provider	139	202	68.8	9.7
25	% of children 0-5 months who were exclusively breastfed during the last 24 hours	70	79	89	9.5
26	% of children 0-23 months who started breastfeeding immediately	215	217	99	
27	% of infants and small children 6-23 months fed according to a minimum of appropriate feeding practices		334		
28	% of children 0-23 months with diarrhea in the last two weeks who received oral rehydration salts (ORS) and/or an appropriate household solution	77	138	55,8	11.7
29	% of households with children 0-23 months who effectively treat their water	223	412	54.1	6.8

30	% of mothers of children 0-23 months who live in households with soap in the place where hands are washed	338	412	82	5.2
31	% of mothers of children 0-23 months who do not need the influence or presence of other persons to make the decision to go to a health facility	3	7	42.9	
32	% of mothers of children 6-23 months who exclusively breastfed their children until the age of 6 months	273	407	67	
33	% of mothers of children 0-23 months who would seek qualified care if they experienced a complication during pregnancy	399	411	95	
34	% of mothers of children 0-23 months who would seek qualified care if they experienced a complication during delivery	396	410	96,6	
35	% of mothers of children 0-23 months who would seek qualified care if they experienced a complication during the postpartum period	402	409	98.2	
36	% of mothers of children 0-23 months who would seek qualified care if a complication occurred in a newborn	407	412	98,8	
37	% of mothers of children 0-23 months that would recommend the hospital or health center as a place to give birth	278	285	97.5	

V. DISCUSSION

Baseline survey results are discussed under relevant project intervention categories below, including key program implications for specific project results/interventions. Because intervention/results 2 and 3 are closely related, their results and program implications are discussed under a combined category. This discussion relates to the entire set of home surveys. We recognize that some of the indicators may be better analyzed in subsets of respondent populations who represent specific groups, such as indigenous or only intervention parishes or only rural populations. These analyses are being done as part of the overall project evaluation, and its interpretation will complement the present document.

Intervention/Result 1: Increased availability of/access to and utilization of a coordinated continuum of high-impact MNC services

A. Antenatal Care

Of mothers who were interviewed, 95% reported having at least one prenatal care session when pregnant with their last child. This figure is slightly higher than the 92% reported for the baseline study. The percentage of women who received prenatal care in a facility rose from 88% to 95% from baseline to endline, while the percentage of women who received prenatal care at home or in the community fell slightly, from 3.8% to 2%.

Among the group of women who received prenatal care in a facility, the percentage of those who received care in an MOH facility fell from 93% to 84%. The percentage of women who reported four or more antenatal care sessions rose slightly, from 69% to 72%. This result varies by ethnicity: Fewer indigenous women reported four or more prenatal care sessions than mestizas. In relation to the baseline study, the percentage of indigenous women rose (from 49% to 57%) as did that for mestizas (from 77% to 80%).

These results suggest that a main project intervention regarding antenatal care and the one promoting four or more antenatal care sessions was significantly successful particularly among indigenous women, rising 8 percentage points among indigenous women and 3 percentage points among mestizas. Results also evidence general improvement of access to institutional antenatal care, which climbed 7 percentage points.

B. Delivery Care

The percentage of mothers who reported giving birth in a health facility was 69.7% at endline and 74% at baseline, a reduction of 4%. However, figures for institutional deliveries among indigenous women rose considerably: 36% to 45%. Facility deliveries for mestizas dropped by a small amount: from 89% to 86%. Overall, institutional deliveries at MOH hospitals or health centers were 80%, similar to the baseline (81%).

Women who reported home-based deliveries, for the most part attended by TBAs or family members, increased from 26% to 31%. Interviewed women reported the following as the main reasons for delivering at home: "home deliveries are customary or traditional" (36%), "not enough time to reach a facility" (30%), and "geographical barriers" (24%). The last two responses are probably related as women may lack time to reach facilities due to long distances. These responses were also the main ones reported in the baseline study, the major difference being a 7 percentage point's average increase among women who reported lack of time and geographical barriers in 2013.

The significant rise in institutional deliveries among indigenous women (9 percentage points) confirms the positive results of project interventions that prioritized the promotion of access to qualified delivery assistance, with emphasis on indigenous women.

C. Early Postpartum Care

Of all interviewed women, 55.3% reported receiving postpartum care in the two days following delivery, in contrast to 62% who so reported at baseline. This early postpartum care included home visits by a TBA, CHW, or skilled provider (15%) and/or facility care (87%), not mutually exclusive. In 2010, home visits were 12% and facility care was 93%.

Overall, the percentage of immediate postpartum care provided by qualified personnel, either in home visits or at facilities, was 59.5%. The vast majority of this care was provided at facilities, mainly hospitals.

Among all interviewed women, 8.3% received a home visit in the first 48 hours after birth, a slightly higher percentage than at baseline (7.8%). Home visit providers dropped for TBAs from 4.3% to 3.2% and for CHWs from 1.5% to 0.2%, while skilled providers increased from 1.9% to 5.1%. These results could be linked to an EONC micro-network strategy where TBAs identify pregnant and postpartum women in the community, particularly those at risk, in order to schedule a joint visit with institutional health personnel. Respondents may have overlooked TBAs as providers of home visits given the presence of institutional health staff, indicating fewer TBA visits and more skilled provider visits even though TBA visits may not have declined.

Among mothers who delivered at home, 18.3% received a home visit in the first 48 hours after birth. These mothers also reported more access to care during the first week of delivery, which rose from 4.2% to 7.3%. They also reported more home visits by skilled providers, which rose by 4 percentage points and more access to postpartum care within the first of week of delivery which increased 3 percentage points.

Women who reported staying in facilities for at least two days after an institutional delivery increased from 80% to 85%, which implies that facility interventions to improve postpartum counseling and routine discharge care is benefitting more women having institutional deliveries.

Intervention/Results 2 and 3: Improved knowledge of/demand for evidence-based MNC services and improved household health practices (Result 2); Improved quality of MNC services (Result 3)

A. Antenatal Care

The percentage of women who received counseling on danger signs during pregnancy rose from 62% to 66.7%, as that for women who received counseling on birth preparedness, from 54% to 72.6%.

Correspondingly, the percentages of women who have knowledge of at least two birth preparedness actions (80.6%) and who implemented them (72.6%) show a significant increase of approximately 10 percentage points in comparison to baseline data.

Women who have knowledge of at least two danger signs during pregnancy also increased, from 62.8% to 69.4%, and even greater improvement occurred in the percentage of women who can name at least two danger signs during delivery, which changed from 50% to 88.3%.

The percentage of women who reported receiving at least two tetanus toxoid vaccinations during pregnancy was 62.6%, having increased significantly (20 percentage points) in relation to the baseline measurement.

In general, data show ANC counseling services and practices improved as women have greater access to counseling on birth preparedness and danger signs during pregnancy and delivery, which leads to improved knowledge regarding these topics and to more numerous preventive actions at the household level. These results suggest that the BCC interventions, particularly those to strengthen TBA capacity for counseling families and mothers who deliver at home, were successful. Improvement of MNC is also supported by the significantly larger number of women that had at least two tetanus vaccinations.

B. Early Postpartum Period

The vast majority of interviewed mothers could name at least two danger signs for women in the postpartum period (93.2%) and at least two for newborns (96.8%). Both percentages increased drastically in comparison to the baseline measurement (60 percentage points).

The percentage of women who believe that postpartum care for mothers and newborns should occur in the first 48 hours after birth fell from 25% to 16.3%, while those who believe care should occur three weeks or more after birth remain a high percentage (37.6%).

The percentage of newborns who started breastfeeding immediately reached 99%, from 61% in the baseline. Those who were exclusively breastfed until the age of 6 months rose from 39% to 62.5%.

The percentage of mothers who applied antiseptics to the umbilical cord after birth dropped from 70% to 59.5%.

As compared to the prenatal period, knowledge of danger signs considerably improved for the postpartum period. However, counseling remains insufficient relative to early postpartum care.

C. Knowledge and Practice Related to Family Planning

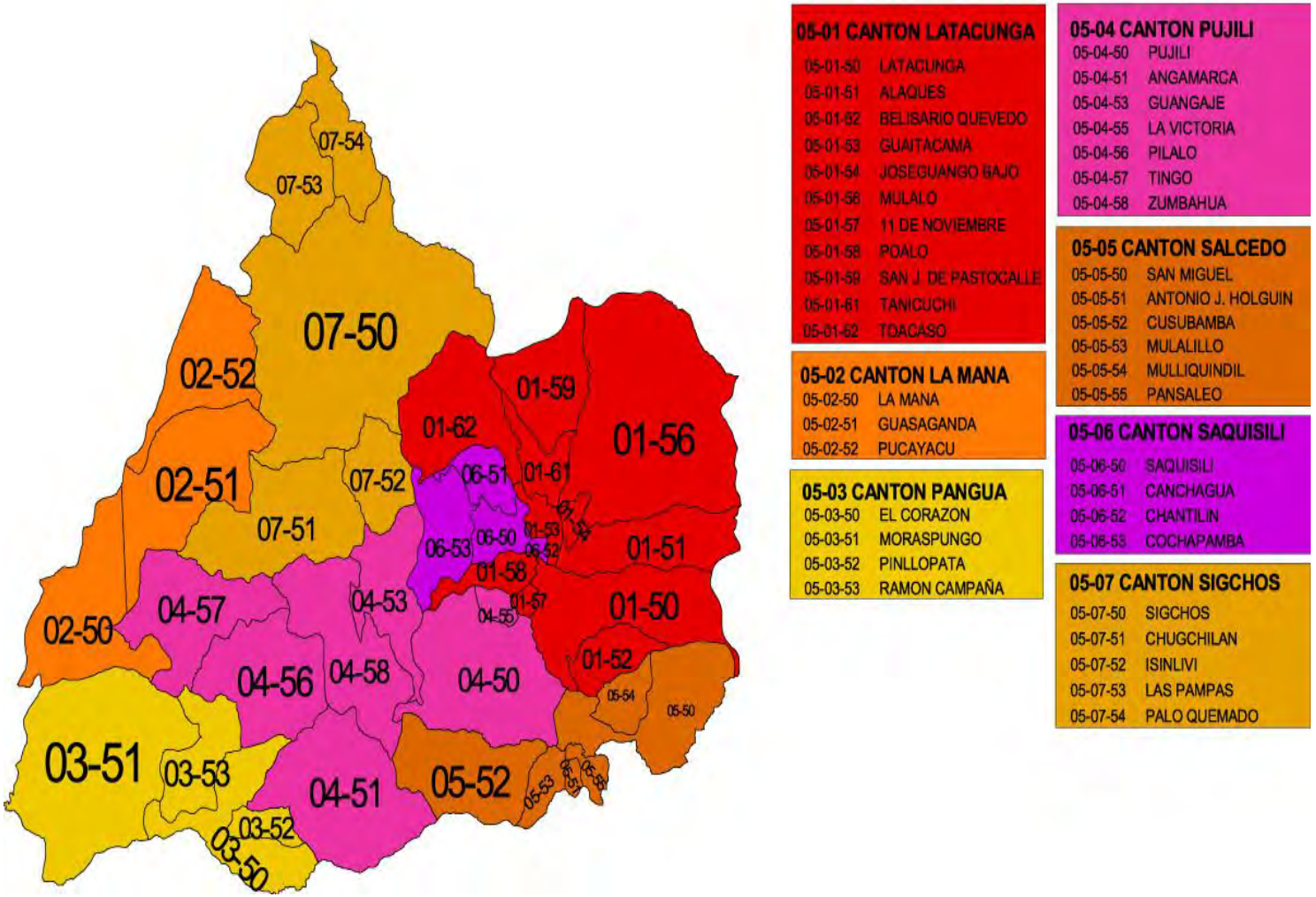
Women reporting use of family planning fell over the intervention period from 58% to 54%, while use of at least one modern FP method rose 4 percentage points to achieve a rate of 50%

More women, 89.5% compared to 80%, believe they should wait at least two years to have another child.

These results suggest that access to modern FP methods and FP counseling regarding optimum spacing between pregnancies has improved for Cotopaxi women.

VI. ANNEXES

Annex A: Map of Project Area with clusters/sampling areas identified



Annex B: Logistical Preparations and Schedule

Fieldwork Logistics

This phase included basic data collection in selected sites. The following activities were undertaken:

- *Data Collection*. Field teams collected information based on the sample size and distribution for cantons and parishes and on assigned workloads.
- *Implementation of quality control mechanisms* during data collection (supervision and validation) by the Supervisor assigned to each team and monitored by CEPAR senior technical staff.

According to the schedule of activities, fieldwork initiated on July 3 and data collection finished on July 15.

Given project characteristics, interviewers were instructed to collect data by sweeping sectors and monitoring was conducted to validate and include visited households according to sample design.

Two fieldwork teams were formed:

	NAMES	ROLE	COD.
TEAM A			
1	Edgar Lima	SUPERVISOR	**11**
2	Patricia Velasteguí	INTERVIEWER	12
3	Tania Guaigua	INTERVIEWER	13
4	María Montenegro	INTERVIEWER	14
5	Bethy Brito	INTERVIEWER	15
	DRIVER	LOGISTIC SUPPORT	
TEAM B			
1	Jorge Macas	SUPERVISOR	**21**
2	Amparo Alvear	INTERVIEWER	22
3	Miriam Espinoza	INTERVIEWER	23
4	Paulina Morales	INTERVIEWER	24
5	Mario Pérez	INTERVIEWER	25
	DRIVER	LOGISTIC SUPPORT	

Based on the sample design and distribution, workload assignments for each field team were as follows:

Cantón	Parroquia	Zona	Sector	Estrato	Muestra	Equipo
Pujilí	Zumbahua	999	44	33	12	A y B
		999	7	34	10	
	Pilaló	1	1	32	7	
	Angamarca	999	3	30	11	A
	Guangaje	999	12	31	10	B

Sigchos	Chugchilán	999	13	47	12	A y B
		999	16	48	14	
	Isinliví	999	12	49	5	
Saquisilí	Saquisilí	2	9	44	7	A y B
	Canchagua	1	1	45	9	
	Cochapamba	999	2	46	7	
Salcedo	Salcedo	999	82	35	4	A y B
		999	17	36	6	
		999	18	37	9	
		3	3	38	9	
Pujilí	Pujilí	999	62	26	9	A y B
		999	11	28	6	
		2	4	29	16	
Salcedo	Pansaleo	1	1	43	6	A y B
	Mulliquindil	1	4	42	6	
	Cusubamba	999	21	39	12	
		999	18	40	6	
Salcedo	Mulalillo	999	15	41	8	B
Pujilí	Pujilí	999	31	27	6	
Pangua	El Corazón	999	21	23	7	A
	Moraspungo	999	10	24	6	
		999	32	25	8	
Latacunga	Pastocalle	999	20	18	7	B
		999	19	19	9	
	Belisario Quevedo	999	21	13	6	A y B
	Poaló	999	9	17	7	
	Guaytacama	999	7	14	8	
		924	1	15	11	
	Tanicuchí	999	14	20	7	
	Toacaso	999	5	21	11	
		1	1	22	7	
	Mulaló	999	4	16	7	
Latacunga	Latacunga	1	3	2	7	A y B
		1	4	3	6	
		14	1	4	10	
		14	4	5	7	
		14	3	6	8	
		5	5	7	7	
		12	2	8	11	
		7	2	9	6	
		7	7	10	7	
		18	8	11	7	
		2	2	12	7	
		999	6	1	9	
Totales					**400**	

Annex C: Survey Questionnaire in English and Spanish

Informed Consent Form

Organization: Center for Human Services (CHS)
Sponsoring Organization: USAID
Project: Cotopaxi, Ecuador Essential Obstetric and Neonatal Care (EONC) Project
Operations Research Topic: *Understanding Barriers, Opportunities and Outcomes of Early Home-Based Postpartum Care by Traditional Birth Attendants*

Purpose: The proposed research will examine current barriers (and opportunities) to the introduction of early post-partum care including improved care- seeking and follow-through with referrals for complications.

Procedures: The interview will take place in a location that is convenient for you. This interview is expected to take 30 minutes to an hour. You will be interviewed by a trained data collector.

Foreseeable risks and discomforts: This study poses minimal risk. You may experience some inconvenience about sharing an opinion or comment about your role, responsibility and practices, or the roles, responsibilities, and practices of other community members. To minimize the risks, you will be interviewed by a same-sex interviewer in a private place. We will not use your name in the research findings.

Confidentiality: All data collected as part of the study will be kept confidential and will be securely stored at the local project office. No data collection tools or notes will include your name in order to protect your privacy.

Voluntary Participation: You may choose not to participate in this evaluation if you do not wish to do so. You may also choose to stop participating at any time during the interview without any negative consequences. Participation is completely voluntary.

Benefits from the Study: Information from the study will be used to improve postpartum home-based care, TBA support and functionality, health system linkages, and service delivery in local communities.

Who to Contact: If you have any questions you may ask them now or later, even after the study has started. If you wish to ask questions later, you may contact Mario Chávez, Co-Researcher (local contact), via phone at (222-22-119) or via email at mchavez@ecnet.com.

Do you have any questions?

_____ _____
(Interviewer Signature) (Date)

Note : The signature indicates that the interviewer has read this document and informed the potential interviewee.

Do you agree to participate in this study ? Yes ☐ 1 No ☐ 0

_____ _____
(Interviewed Signature) (Date)

Note: A signature is required if the potential interviewee is literate and/or can sign. If the person is illiterate, please write N/A. In this case, the interviewee's signature is sufficient.

Knowledge, Attitudes and Practices (KAP) Survey on Neonatal and Maternal Health 2010

To be eligible for this survey, the woman must have at least one child who is 0-23 months old

Ask the mother if she has children under 24 months who live with her. If yes, proceed with the interview. If no, thank the mother and end the interview.

Questionnaire Nº : /_____/_____/_____/

I. GEOGRAPHIC AND SAMPLING DATA
1.1 PROVINCE: _____ /_____/_____/ **1.2** CANTON: _____ /____/____/____/____/
1.3 CITY OR RURAL PARISH: _____ /____/____/____/____/____/____/
1.4 COMMUNITY, NEIGHBORHOOD: _____
1.5 ZONE Nº: /_____/_____/_____/ **1.6** SECTOR Nº: /_____/_____/ **1.7** BLOCK Nº: /_____/_____/
1.8 ADDRESS (Street, road) _____

INTERVIEW RESULT			
No. of visits	**1**	**2**	**3**
Date of visits	Day ⌊__⌋⌊__⌋ Month ⌊__⌋⌊__⌋	Day ⌊__⌋⌊__⌋ Month ⌊__⌋⌊__⌋	Day ⌊__⌋⌊__⌋ Month ⌊__⌋⌊__⌋
Start time of interview	Hour ⌊__⌋⌊__⌋ Min. ⌊__⌋⌊__⌋	Hour ⌊__⌋⌊__⌋ Min. ⌊__⌋⌊__⌋	Hour ⌊__⌋⌊__⌋ Min. ⌊__⌋⌊__⌋
End time of interview	Hour ⌊__⌋⌊__⌋ Min. ⌊__⌋⌊__⌋	Hour ⌊__⌋⌊__⌋ Min. ⌊__⌋⌊__⌋	Hour ⌊__⌋⌊__⌋ Min. ⌊__⌋⌊__⌋
Result (*)	⌊__⌋	⌊__⌋	⌊__⌋
(*)Result Code: Completed…….…….. 1 Respondent not at home…..…… 2 Postponed ……..…… 3 Refused …….. 4 Other (specify) _____ …. 5	Name of Interviewer: _____ Name of Supervisor: _____		
PROCESSING	**Code**	**Date**	
Coded:	/_____/	_____	
Entered:	/_____/	_____	

A. Sociodemographic Characteristics

II. CHARACTERISTICS OF MOTHER AND CHILD UNDER 24 MONTHS OF AGE			
2.1	What is your exact age in years?	/_____/_____/ Years	
2.2	What is the highest level of education you have attained? **[Note: Choose only one response]**	No school …….. Incomplete Primary School …… Completed Primary School …… Incomplete Secondary School …….. Completed Secondary School …….. Technical training …… University studies …… Other, specify:_____	0 1 2 3 4 5 6 8
2.3	How do you identity yourself?: **[Note: Read the options available. Register only one answer]**	Black? …… Mulatta? …… White? …….. Mestiza? …… Indigenous? …….. Other, specify: _____	1 2 3 4 5 88
2.4	What is your <u>main</u> activity or occupation?	Housewife …… Peasant worker …… Housekeeper …… Public sector worker …… Trader …… Industry worker …… Private employee …… Student …… Other, specify: _____ No response ……	1 2 3 4 5 6 7 8 88 99
2.5	What is your current marital status?	Single …… Married …….. Divorced …… Separated …… Widow …… Common-law marriage …… No response ……	1 2 3 4 5 6 99
2.6	During your life, how many children have you had who were **<u>born alive</u>**?	/_____/_____/ No response	 99
2.7	How many living children do you currently have, even if they do not live with you?	/_____/_____/ No response	 99
2.8	What is the name of your youngest child?	_____	
2.9	Sex of youngest child:	Male …… Female ……...	1 2
2.10	Date of birth of (NAME)?	Day: /_____/_____/ Month: /_____/_____/ Year: /_____/_____/_____/_____/	
2.11	**INTERVIEWER:** calculate how many months old is (NAME). If child is less than one month old, write "00"	/_____/_____/ Months	

B. PRACTICE AND CARE DURING PREGNANCY

III. PRACTICE AND CARE DURING PREGNANCY			
3.1 (I2)	Did you have any prenatal checkups when you were pregnant with (NAME)?	Yes …… No ……..	1 2 →**3.21**
3.2	During your pregnancy with (NAME), how many months pregnant were you when you had your first prenatal checkup?	/_____/ Months	

3.3	Where did you receive a prenatal checkup? **[Note: Choose all responses given by the woman. Do not read the list of possible responses. Jumps should only be done when response is option 2 or 3 exclusively]**	At home (her home) …… In the village …… In the health center …… Not Applicable ……	1 2→**3.6** 3→**3.15** 9
Prenatal Service Utilization at Home or in the Village			
3.4	If **<u>at home</u>**, from whom did you receive prenatal care? **[Note: Choose all responses given by the woman.]**	Community health worker (CHW) …… Traditional birth attendant (TBA) …… Skilled health worker (doctor, nurse, midwife) …….. Other (specify):_____ Not Applicable ……	1 2 3 4 99
3.5	How many times did you receive prenatal services **<u>at home</u>** during your last pregnancy?	/_____/_____/ Nº of checkups Not Applicable ……	 99
3.6	**Interviewer, see Q. 3.3. If the woman received prenatal checkups in the village, ask the following questions; otherwise, jump to Q.3.8** If **<u>in the village</u>** from whom did you receive prenatal care? **[Note: Choose all responses given by the woman.]**	CHW …….. Traditional birth attendant (TBA) …… Skilled health worker (doctor, nurse, midwife) …… Other (specify): _____ Not Applicable ……...	1 2 3 4 99
3.7	How many times did you receive prenatal services in the village during your last pregnancy?	/_____/_____/ Nº of checkups Not Applicable ……	 99
Did the woman have at least 4 prenatal visits in her home and/or village? **Yes___ No___**			
Content of Prenatal Services at Home or in the Village			
3.8	During prenatal services provided **<u>at home (or in the village)</u>** by [“name of the community health worker”], did you receive advice about how to prepare for birth?	Yes …… No …… Does not know …… Not Applicable ……	1 2 3 99
3.9	During prenatal services provided **<u>at home (or in the village)</u>**, did you receive advice on danger signs that may indicate a pregnant woman is sick and needs to see a health care provider?	Yes …… No …… Does not know …… Not Applicable ……	1 2 3 99
3.10	What other services/care by [“name of the community health worker”] did you receive? **[Note: Do not read the list of possible responses. Choose all responses given by the woman.]**	Received folic acid …… Received the tetanus vaccine …… Received advice about the importance of eating more/eating a variety of foods …… Physical exam for maternal complications during pregnancy …… Received counseling on danger sings ……... Received counseling about preparation for birth …. Received counseling on newborn care …….. Received information about family planning ……. Other (specify): _____ Not Applicable ……	1 2 3 4 5 6 7 8 9 99
3.11	Did the [“name of community agent”] tell you that you had a problem related to your pregnancy and that it was necessary to go to the health center for special care?	Yes …….. No …… Does not know ……... Not Applicable ……	1 2 3 99
3.12	If yes, did the [“name of community agent”] refer you to a health center because of problems related to your pregnancy?	Yes …….. No …… Does not know …….. Not Applicable ……...	1 2 3 99
3.13	If yes, were you able to go within the time frame recommended by the [“name of community agent”]? [Note: Choose only one response.]	Yes …… No …….. Does not know (if the health worker did not recommend a time frame) …….. Not Applicable ……..	1 2 3 99

3.14	Who was the primary person who made the decision to allow you to visit a health center? **[Note: Choose only one response.]**	Herself …… Husband …… Head of the household …… Oldest woman in the household …… Other (specify): _____ Does not know …….. Not Applicable ……...	1 2 3 4 5 6 99
Prenatal care at the Health Center			
3.15	Do you know if there are any health facility that provides care for pregnant women, mothers and newborns in this parish or canton?	Yes …….. No …… Does not know/ does not remember ……..	1 2 9
3.16	**Interviewer, see Q 3.3 If the woman received prenatal care/counseling at a health center ask the following questions, otherwise jump to Q 3.21:** If you received prenatal checkups **at a health facility** when you were pregnant with (NAME), Where did you go **more frequently**?	MOH Hospital …… MOH Health Center/Sub-center …….. EISS Hospital/clinic …… Peasant Social Security …… Police or Armed Forces Hospital/clinic …… Private Clinic/Doctor …… Workplace clinic …….. Other, specify? _____ Does not know/ does not remember…….....	1 2 3 4 5 8 9 88 99
3.17	Who provided most prenatal checkups when you were pregnant with (NAME)?	Doctor …… Midwife …… Nurse …… Auxiliary nurse …… Other, specify? _____ Does not know/ does not remember……	1 2 3 4 5 8
3.18	How many times did you receive prenatal care at the health center during your last pregnancy?	/_____/_____/ Nº of checkups Not Applicable ……	 99
3.19	At the health center where you received prenatal checkups, did you receive counseling on how to care for yourself during pregnancy, and identify danger signs for you or (NAME) who was going to be born?	Yes…… No …….. Does not know/ does not remember……	1 2 99
3.20	At the health center where you received prenatal checkups, did you receive counseling on how to prepare for the delivery and birth of (NAME)?	Yes …… No …….. Does not know/ does not remember……	1 2 99
Did the woman have at least 4 prenatal visits to the health center during her last pregnancy? **Yes___ No___**			
Did the woman have at least 4 combined prenatal checkups, at the community and at home, during her last pregnancy? **Yes___ No___**			
Tetanus Vaccination during Pregnancy			
3.21	During your pregnancy with (NAME) did you receive an injection in the arm to prevent the baby from getting tetanus (convulsions) after birth?	Yes…… No …….. Does not know/ does not remember ……	1 2 9 } **3.23**
3.22	While pregnant with (name), how many times did you receive such an injection?	/_____/ Nº of times	
3.23	Did you receive any Tetanus toxoid injection at any time before that pregnancy?	Yes…… No …… Does not know/ does not remember ……..	1 2 3 } **3.25**
3.24	Before the pregnancy with (NAME), how many times did you receive a tetanus injection?	/_____/ Nº of times	

Did the woman received at least 2 Tetanus toxoid injections before the birth of youngest child?: **Yes____ No____**			
Birth Preparation			
3.25	What sort of preparations did you and your family make before the birth of your last child? **[Check all responses given by the woman. Do not list all possible responses.]**	Identified the center where she should go to give birth Identified a skilled provider or a TBA to assist with the birth …….. Identified a place where she can go in case of emergency …….. Put money aside ……. Prepare the birth kit (cloth, soap, etc.) …… Identified a transportation method for rapid evacuation in case of emergency …… Identified a blood donor …….. Planned support from family members (assistants, infant caretakers, etc.) …….. Prepare documents (ID, carnet, in case of having insurance, etc.) …….. Other, specify?_____ No preparations made …….	1 2 3 4 5 6 7 8 9 10 99
The woman implemented at least 2 birth preparedness elements (A-I)? **Yes____ No____**			
3.26	In your opinion, what should a pregnant woman and her family do to properly prepare themselves for the birth? **[Check all responses given by the woman. Do not read the list of possible responses.]**	Identify the center where the woman should go to give birth Identify a skilled provider or TBA to assist with the birth Identify a place where she can go in case of emergency Put money aside Prepare the birth kit (cloth, soap, etc.) Identify a transportation method for rapid evacuation in case of emergency Identify a blood donor Plan support from family members (assistants, infant caretakers, etc.) Prepare documents (ID, carnet, in case of having insurance, etc.) Other, specify?_____ No response given	1 2 3 4 5 6 7 8 9 10 99
The woman knows at least 2 birth preparedness elements (A-I)? **Yes____ No____**			
Danger signs for a Pregnant Woman			
3.27 (I10)	During any pregnancy, women can experience problems or serious illnesses and should immediately seek care at a health facility. What danger signs would prompt you to seek immediate care at a health facility? **[Check all spontaneous responses given by the woman that match the alternatives.] Repeat the question adding: What else?**	Severe stomach ache …… Vaginal bleeding…….. Fever …… …… Water breaks …… Swollen feet, hands, or face ……. Lack of fetal/baby movement ……. Fainting, loss of consciousness …….. Vision problems/blurred vision …… Convulsions …… Other, specify? _____ Does not know…….. No response ……...	
The woman knows at least 2 birth danger signs for a pregnant woman (A-H)? **Yes____ No____**			

3.28	If you become pregnant again and have any problem, illness or complication **during your pregnancy**, would you seek some form of care?	Yes …….. No …… Does not know ……	1 2 →**4.1** 9 →**4.1**
3.29	Where would you **mainly** go to?	MOH Hospital …… MOH Health Center/Sub-center …… EISS Hospital/clinic …….. Peasant Social Security …… Police or Armed Forces Hospital/clinic …… Private clinic/doctor …… Workplace clinic …… TBA …….. Other, specify? _____ Does not know/ does not remember……..	1 2 3 4 5 6 7 8 88 99

C. CARE RECEIVED DURING LABOR AND BIRTH

IV. Danger Signs during Birth			
4.1 (I11)	During delivery, what problems, symptoms or signs do you think indicate danger for the mother or child and that care should be sought from a health provider? **(MARK ALL SPONTANEOUS ANSWERS THAT COINCIDE WITH THE ALTERNATIVES)**. Repeat the question adding **What else?**	TBA says that the baby is incorrectly positioned Absence of or minimal fetal movement Prolonged labor Fever …… Headache / Blurred vision Convulsions …… Difficulty breathing Placenta is retained ……..…… Loss of consciousness…… Profuse bleeding…….. Other, specify? _____ Does not know…….. No response ……..	1 2 3 4 5 6 7 8 9 10 88 99
The woman knows at least 2 birth danger signs that can occur during birth (A-H)? **Yes____ No____**			
Delivery Assistance, Location and immediate post-partum practices			
4.2	Where did you give birth to (NAME)? **[Note: Choose only one response.]**	MOH Hospital …… MOH Health Center/Sub-center …… EISS Hospital/Clinic …….. Peasant Social Security …… Police or Armed Forces Hospital/Clinic …… Private Clinic/Doctor …… At home with TBA …….. At home with relative …… Alone during birth…… Other, specify? _____ Does not know/ does not remember ……..	1 2 3 4 5 6 7 8 9 88 99
4.3	Who assisted you with the delivery of (NAME)? **[Choose only one response. If more than one provider is cited by the woman, choose the most skilled provider.]**	Doctor …… Midwife …… Nurse…… TBA …….. Relative …… Alone during delivery…… Other, specify? _____ Does not know/ does not remember ……..	1 2 3 4 5 6 8 9
The woman was assisted by a skilled provider during her last birth? **Yes____ No____**			
4.4	**Interviewer: See Q 4.2; if the woman gave birth in a health facility, ask the following question, otherwise jump to Q 4.5:**	Yes…… No …… Does not know/ …….... Not Applicable ……	1 2 3 → **4.10**

	Would you recommend to a friend or relative giving birth at the facility where you delivered (NAME)?		99
4.5 (I6)	**Interviewer: See Q 4.2; if the woman did NOT give birth at a health facility, ask:** Which is the main reason you did not deliver (NAME) in a health facility?	Geographical barriers (distance, bad roads, etc.) There was no transportation at the village Did not have time to get there…… Husband/partner was opposed …… Relatives were opposed …….. Did not have money to pay …… Facility care is deficient…… …….. Home delivery is customary/traditional …… Other, specify? _____ Does not know/ does not remember …….. Not Applicable ……	1 2 3 4 5 6 8 9 10 11 99
4.6	Was anything placed on the umbilical cord either before or after it was cut?	Yes No Does not know	1 2→**4.8** 9→**4.8**
4.7	What was mainly placed on the cord?	Traditional remedies (herbal infusions, ointments, plaster) Antiseptics (alcohol, hydrogen peroxide, etc.) Other, specify: _____ Does not know Not Applicable	1 2 8 88 99
4.8	Was (NAME) dried (wiped) immediately after birth before the placenta was delivered?	Yes No Does not know	1 2 9
4.9	Was (NAME) wrapped in a warm cloth or blanket immediately after birth before the placenta was delivered?	Yes No Does not know	1 2 9
4.10	How long after birth did you first put (NAME) to the breast?	Immediately Hours: _____ Days: _____ Other, specify: _____ Don't remember	87 88 99
Breastfed within one hour of birth? **Yes____ No____**			
Essential Newborn Care provided? (dried/warmed; cord care; BF within one hour) **Yes____ No____**			
Management of Obstetrical Emergencies during Home Deliveries			
4.11	**Interviewer: See Q 4.2; if the woman gave birth at home, ask the following question, otherwise jump to Q 4.19:** Did you or the newborn (NAME) have a serious problem for which you had to seek immediate help during labor?	Yes…… No …….. Does not know/does not remember Not Applicable	1 2 →**4.19** 9 →**4.19** 99
4.12	What serious problem or emergency did you have?	_____ Not Applicable	 99
4.13	Did the ["name of the community health worker"] tell you that you had a problem related to birth that required you to go to a health center?	Yes…… No …….. Does not know/does not remember Not Applicable	1 2 9 99
4.14	During your home birth, did ["name of the community health worker"] refer you to a health center because of a problem related to the birth?	Yes…… No …….. Does not know/does not remember Not Applicable	1 2 9 99
Referral made to Health Center during birth by TBA or CHW) **Yes____ No____**			

4.15	Did you go to a health facility to receive care for this problem?	Yes…… No …….. Not Applicable	1 2 →**4.19** 99
	Follow-through with referral **Yes____ No____**		
4.16	If yes, tell me which things helped getting to the health facility? **[Choose all responses given by the woman. Do not read aloud the responses.]**	Immediate access to community transportation (motorcycle, wagon, bicycle, vehicle and fuel) Coordination by husband or other family member to facilitate evacuation Communication method with health facility Availability of a selected community "leader" who facilitated the evacuation Availability of a "community health worker" who facilitated the evacuation Immediate access to means of payment Immediate access to a skilled provider Accompanied by a community health worker Other [specify]: _____ No response given by the woman	1 2 3 4 5 6 7 8 88 99
4.17	In the end, were you able to get to the health facility?	Yes…… No …….. Not Applicable	1 2 9
4.18	Who made the decision to allow you (or not allow you) to go to the health center? **[Choose only one response]**	Herself Husband Head of the household Oldest woman in the household Relative Other (specify): _____ Does not know/ does not remember Not Applicable	
4.19	If you were to give birth again and had a problem, difficulty or complication **during delivery**, would you seek some form of care?	Yes …….. No …… Does not know	1 2 →**5.1** 9 →**5.1**
4.20	Where would you **mainly** go to?	MOH Hospital…… MOH Health Center/Sub-center …… EISS Hospital/Clinic …… Peasant Social Security ……. Police or Armed Forces Hospital/Clinic …… Private clinic/doctor …… TBA ……. Other, specify? _____ Does not know/ does not remember……..	1 2 3 4 5 6 7 88 99

D. POSTPARTUM CARE

	V. Use of Postnatal Care Services		
5.1	**[Interviewer: See Q 4.2; if the woman gave birth at a health facility, ask the following question, otherwise jump to Q 5.2]** After you gave birth to your last child at the health center, did you stay there for at least 2 days?	Yes No Not Applicable	1 2 99
5.2	Did you receive post-partum care or counseling from a health worker within **two days following the birth** of (NAME)?	Yes No Not Applicable	1→**5.4** 2 9
5.3	Did you receive postnatal care/counseling **during the first week after the birth** of (NAME) at home, in the village, at the health center, or elsewhere? [	Yes No Not Applicable	1 2→**5.8** 99
5.4	If yes, where did you receive postpartum care/counseling?	Home visit by a TBA Home visit by a CHW	1 2

	[Choose all responses given by the woman. Do not read the possible responses.]	Home visit by a skilled provider Health center/Hospital Private health clinic Not Applicable	3 4→**5.8** 5→**5.8** 99
Received post-partum care visit within 2 days of birth **Yes____ No____**			
Content/Quality of Postnatal Home Visits			
5.5	During the postnatal home visit, did you receive counseling on the following topics: **[Read each alternative and mark the code if answer is affirmative]** **[Note: Make sure the woman fully understands what you asked]**	What a new mother must do to take good care of her baby…….. Breastfeeding and nutrition for the baby…… Care and danger signs in the newborn…… Care and danger signs in the new mother…… Family planning…….. Postnatal visits to the health center…… The importance of eating more than usual and/or eating a variety of foods…… Not Applicable……	1 2 3 4 5 6 7 99
5.6	What other services/counseling did you receive during postnatal home visits **for your newborn**? **[Choose all responses given by the woman. Do not read the possible responses.]**	Birth registration…… Newborn physical exam…….. Vaccinating the newborn…… Other [specify]:_____ Does not know/does not remember Not Applicable……	1 2 3 8 88 99
5.7	What other services did you receive during the postnatal home visit **for you yourself**? **[Choose all responses given by the woman. Do not read the possible responses.]**	Physical examination to detect maternal complications Distribution of Vitamin A Family planning Other [specify]: _____ Does not know/does not remember Not Applicable	1 2 8 88 99
Danger Signs for the Recently-Delivered Woman and Newborn			
5.8	In your opinion, what problems, symptoms or signs would make you think that a newborn is sick and should immediately receive care from a health center? **[Choose all responses given by the woman. Do not read the possible responses.]** Repeat the question adding **What else?**	Newborn does not cry immediately after birth ……. Difficulty breathing, quick breathing…… Newborn is cold…… Fever…….. Refusal or inability to breastfeed…… Lethargy, very tired, or inactive…… Convulsions …… Pustules or sores on the skin…… Signs of umbilical cord infection…… Other, specify? _____ Does not know/ No response……	1 2 3 4 5 6 7 8 9 88 99
5.9	What danger signs would indicate to you that a recently-delivered woman is sick and should immediately receive care from a health center? **[Choose all responses given by the woman. Do not read the possible responses.]** Repeat the question adding **What else?**	Fever …… Foul-smelling vaginal discharge…… Profuse bleeding …… Vision problems / blurred vision…… Strong stomach ache (pelvic pain)…… Fainting, loss of consciousness…… Convulsions…… Other, specify? _____ Does not know…….. No response ……..	
The woman knows at least 2 danger signs for the newborn (A-H)? **Yes____ No____**			
The woman knows at least 2 danger signs for a recently-delivered woman (A-F)? **Yes____ No____**			
Emergency Management after Birth			
5.10	Did you have a serious problem (or an emergency) at home after the delivery of (NAME), for which you had	Yes…… No……..	1 2→**5.17**

	to seek immediate help?	Not Applicable……..	99
5.11	What serious problem (emergency situation) did you have?	_____ _____ Not Applicable	 99
5.12	Did you immediately go to a health center?	Yes No Not Applicable	1 2 99
5.13	**[Note: See Q 5.4; if the woman received a post-partum home visit, ask the following questions, otherwise, jump to Q 5.17]** Did the person who assisted you tell you there was a problem related to the <u>postpartum</u> period that required you to visit a health facility?	Yes No Not Applicable	1 2→**5.17** 99
5.14	Did the person who assisted you refer you to the health center because of any problems after birth?	Yes No Not Applicable	1 2→**5.17** 99
Referred to Health Center during post-partum period **Yes____ No____**			
5.15	If yes, were you able to go to a health center within the recommended timeframe?	Yes No Not Applicable	1 2 99
Follow-through with post-partum referral **Yes____ No____**			
5.16	Who made the decision to allow you (or not allow you) to go to the health center?	Herself Husband Head of the household Oldest woman in the household Relative Other (specify): _____ Does not know/ does not remember Not Applicable	1 2 3 4 5 8 9 99
5.17	If you were to give birth again and you experienced a problem, difficulty or complication during **the post-partum period**, would you seek some form of care?	Yes …….. No …… Does not know	1 2 →**5.19** 9
5.18	Where would you **mainly** go to?	MOH Hospital…… MOH Health Center/Sub-center …… EISS Hospital/Clinic …… Peasant Social Security ……. Police or Armed Forces Hospital/Clinic …… Private clinic/doctor …… TBA ……. Other, specify? _____ Does not know/ does not remember……..	1 2 3 4 5 6 7 88 99
NEWBORN CARE			
5.19	In your opinion, what is the minimum time period after birth that a woman and her baby should receive postnatal care (at the home or health center)? **[Choose only one response. Do not read the possible responses.]**	1 or 2 days 3-6 days 1 or 2 weeks 3-6 weeks More than 6 weeks Does not know/ No response	1 2 3 4 5 9
5.20	If you became pregnant again, and **your newborn** experiences a problem, discomfort, complication, would you seek some type of care?	Yes …….. No …… Does not know	1 2 →**5.22** 9
5.21	Where would you **mainly** go to?	MOH Hospital…… MOH Health Center/Sub-center …… EISS Hospital/Clinic …… Peasant Social Security ……. Police or Armed Forces Hospital/Clinic ……	1 2 3 4 5

		Private clinic/doctor …… TBA ……. Other, specify? _____ Does not know	6 7 88 99
5.22	What substances did you apply on the baby's umbilical cord after birth? **[Choose only one response. Do not read the possible choices.]**	Traditional remedies (herbal infusions, ointments, plaster) Antiseptics (alcohol, hydrogen peroxide, etc.) Other, specify: _____ Does not know/ does not remember None	1 2 8 9 99
5.23	In your opinion, what must a new mother do to take good care of her baby after birth? **[Choose all responses given by the woman. Do not read the possible responses.]**	Dry the newborn immediately after birth…… Establish skin-to-skin contact with the mother……. Delayed the baby first bath for at least 6 hours…… Cover the baby's head with a cap or cloth to keep him or her warm…… Initiate breastfeeding within the first hour after birth… Exclusive breastfeeding…….. Do not put anything on the umbilical cord…… Handwashing…… Other, specify: _____ No responses given……	1 2 3 4 5 6 7 8 88 99
Can the mother identify at least 2 newborn care elements (A-H)? **Yes____ No____**			
Breastfeeding/ Infant and Young Child Feeding			
5.24	At what point after the birth of (NAME) did you initiate breastfeeding? **[Choose only one response]**	In the first hour 2-6 hours after birth More than 6 hours after birth Never Does not know/ does not remember	1 2 3 4 9
5.25	At what age did you start to give (NAME) food or liquids other than breastmilk, like water, corn or millet porridge, etc. (NAME)? **[Choose only one response]**	From birth 1 or 2 months 3 -5 months After 6 months Do not know/ does not remember	1 2 3 4 9
5.26	**INTERVIEWER: See Q. 2.11;** if the baby is less than 6 months old. If so ask: During the last 24 hours, has (NAME) been exclusively fed with breast milk? **[If baby is more than 6 months old jump to Q 6.1]**	Yes …… No …….. Not Applicable ……	1 2 99

E. Rapid Catch Indicators

VI. FAMILY PLANNING			
6.1	Are you currently doing something or using any method to delay or avoid getting pregnant?	Yes …… No ……..	1 2 →**6.3**

6.2	Which method are you (or your husband/ partner) using? **[Do not read responses. Code only one response. if more than one method is mentioned, ask:]** Which is the MAIN method that you (or your husband/ partner) use to delay or avoid getting pregnant?" **[If respondent mentions both condoms and standard days method, code "12" for standard days method].**	Female Sterilization Male Sterilization Pill IUD Injectables Implants Condom Female Condom Diaphragm Foam/Jelly Lactational Amen. Method Standard Days Method/ Cycylebeads Rhythm Method (Other than Standard Days) Withdrawal Abstinence Other (Specify): _____	1 2 3 4 5 6 7 8 9 10 11 12 13 14 88
Uses a modern contraceptive method? **Yes____ No____**			
6.3	In your opinion, how long should a woman wait between births?	Less than 2 years 2-4 years 5 years or more The time she wishes Does not know/does not respond	1 2 3 4 9

Breastfeeding/ Infant and Young Child Feeding

6.4	Now I would like to ask you about liquids or foods (NAME) had yesterday during the day or at night. Did (NAME) drink/eat: **[Read the list of liquids: A through E, starting with "Breast Milk"]**		**YES**	**NO**	**DK**	
	A. Breast milk?		1	2	9	
	B. Plain water?		1	2	9	
	C. Commercially produced infant formula?		1	2	9	
	D. Any fortified, commercially available infant and young child food" [e.g. Cerelac]?		1	2	9	
	E. Any (other) porridge or gruel?		1	2	9	
6.5	Now I would like to ask you about **(other)** liquids or foods that (NAME) may have had yesterday during the day or at night. I am interested in whether your child had the item even if it was combined with other foods. Did (NAME) drink/eat:					
	GROUP 1:DAIRY		**YES**	**NO**	**DK**	
	CHECK Q.6.4C – IF YES, CIRCLE YES HERE A. Commercially produced infant formula?		1	2	9	
	B. Milk such as tinned, powdered, or fresh animal milk?		1	2	9	
	C. Cheese, yogurt, or other milk products?		1	2	9	
6.6	**GROUP 2: GRAIN**		**YES**	**NO**	**DK**	
	CHECK Q. 6.4 D – IF YES, CIRCLE YES HERE D. Any fortified, commercially available infant and young Child food (e.g. Cerelac)?		1	2	9	
	CHECK Q. 6.4 E – IF YES, CIRCLE YES HERE E. Any (other) porridge or gruel?		1	2	9	
	F. Bread, rice, noodles, or other foods made from		1	2	9	

	grains?		
	G. White potatoes, white yams, manioc, cassava, or any other foods made from roots?	1 2 9	
6.7	**GROUP 3: VITAMIN A RICH VEGETABLES**	**YES NO DK**	
	H. Pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside?	1 2 9	
	I. Any dark green leafy vegetables?	1 2 9	
	J. Ripe mangoes, papayas or (INSERT ANY OTHER LOCALLY AVAILABLE VITAMIN A-RICH FRUITS)?	1 2 9	
	K. Foods made with red palm oil, palm nut, palm nut pulp sauce?	1 2 9	
6.8	**GROUP 4: OTHER FRUITS/VEGETABLES**	**YES NO DK**	
	L. Any other fruits or vegetables like oranges, grapefruit or pineapple?	1 2 9	
6.9	**GROUP 5: EGGS**	**YES NO DK**	
	M. Eggs?	1 2 9	
6.10	**GROUP 6: MEAT, POULTRY, FISH**	**YES NO DK**	
	N. Liver, kidney, heart or other organ meats?	1 2 9	
	O. Any meat, such as beef, pork, lamb, goat, chicken, or duck?	1 2 9	
	P. Fresh or dried fish or shellfish?	1 2 9	
	Q. Grubs, snails, insects, other small protein food?	1 2 9	
6.11	**GROUP 7: LEGUMES/NUTS**	**YES NO DK**	
	R. Any foods made from beans, peas, lentils, or nuts?	1 2 9	
6.12	**GROUP 8: OILS/FATS**	**YES NO DK**	
	S. Any oils, fats, or butter, or foods made with any of these?	1 2 9	
	T. **CHECK HOW MANY FOOD GROUPS (GROUPS 1-8 IN ABOVE TABLE) HAVE AT LEAST 1 'YES' CIRCLED?**	**Number of Groups** ☐	
6.13	**GROUP 9: OTHER FOODS**	**YES NO DK**	
	U. Tea or coffee?	1 2 9	
	V. Any other liquids?	1 2 9	
	W. Any sugary foods, such as chocolates, candy, sweets, pastries, cakes, or biscuits?	1 2 9	
	X. Any other solid or soft food?	1 2 9	
	How many times did (NAME) eat solid, semi-solid, or soft foods other than liquids yesterday during the day or at night? **INTERVIEWER: If caregiver answers seven or more times, record "7". Small snacks and small feeds such as one or two bites of mother's or sister's food should not be counted. Liquids do not count for this question. Do not include thin soups or broth, watery gruels, or any other liquid.Use probing questions to help the respondent remember all the times the child ate**	NUMBER OF TIMES ☐ DON'T KNOW…… …….9	

	yesterday		
Vitamin A Supplementation			
6.14	Has (Name) ever received a Vitamin A dose (like this/any of these)?	Yes No Does not know	1 2→**6.16** 99→**6.16**
6.15	Did (Name) receive a Vitamin A dose within the last 6 months?	Yes No Does not know	1 2 99
Child Immunizations			
6.16	Do you have a card or child health booklet where (Name's) vaccinations and Vitamin A (capsules) are written down? **IF YES: May I see it please?**	Yes No	1 2→**6.19**
6.17	**Copy vaccination dates for vitamin a, first and third DPT dose (DTP1-DPT3), and measles, from the card or booklet.** **If vaccines are not recorded in child health card or booklet, fill in 99/99/9999.**	**DAY MONTH YEAR** VITAMIN A..|___||___|/|___||___|/|___||___|___||___| DTP1……|___||___|/|___||___|/|___||___|___||___| DTP3……|___||___|/|___||___|/|___||___|___||___| MEASLES...|___||___|/|___||___|/|___||___|___||___|	
6.18	Has (NAME) received any vaccinations that are not recorded on this card, including vaccinations given during immunization campaigns?	Yes No Does not know	1→ **6.22** 2→ **6.22** 9→ **6.22**
6.19	**If the mother does not have a booklet**, ask: Has (NAME) received a DTP vaccination, that is, an injection given in the thigh, sometimes at the same time as polio drops?	Yes No Does not know	1 2→ **6.22** 9→ **6.22**
6.20	How many times?	NUMBER OF TIMES ..... ☐	
6.21	Did (Name) ever receive an injection in the arm to prevent Measles?	Yes No Does not know	1 2 9
Control of Diarrhea			
6.22	Has (Name) had diarrhea in the last 15 days, including today?	Yes No	1 2→ **6.24**
6.23	Was s/he given any of the following to drink at any time since s/he started having diarrhea: **[Read choices aloud]**	**YES NO DK**	
	a) A fluid made from a special packet called (local name for ORS packet)?	1 2 9	
	b) A pre-packaged ORS liquid?	1 2 9	
	c) A government-recommended homemade fluid?	1 2 9	
ARI/Pneumonia			
6.24	Has (Name) had an illness with a cough that comes from the chest at any time in the last two weeks?	Yes No	1 2→ **6.28**
6.25	When (Name) had an illness with a cough, did he/she have trouble breathing or breathe faster than usual with short, fast breaths?	Yes No Does not know	1 2

6.26	Did you seek advice or treatment for the cough/fast breathing?	Yes No	1 2→ **6.28**
6.27	Who gave you advice or treatment? Anyone else? **RECORD ALL MENTIONED**.	Doctor……..…… Nurse……..... Auxiliary nurse…… Trained community health worker…… Other……..…	1 2 3 4 8
	Water and Sanitation		
6.28	Do you treat your water in any way to make it safe for drinking?	Yes No	1 2→ **6.30**
6.29	If yes, what do you usually do to the water to make it safer to drink? **[Only check more than one response if several methods are usually used together, for example, cloth filtration and chlorine.]**	Let it stand and settle/sedimentation…… Strain it through cloth…….. Boil…… Add bleach/chlorine..…… Water filter (ceramic, sand, composite)…… Solar disinfection……..…… Other..... Don't know……..……..	1 2 3 4 5 6 8 9
6.30	***ASK TO SEE AND OBSERVE*** *Can you show me where you usually wash your hands and what you use to wash hands?*	Inside / near toilet facility.. ..... …… Inside / near kitchen/cooking place ..... ……... Elsewhere in yard ..... ……... No specific place ..... …… No permission to see..... ……	1 2 3 4 6 →**END**
6.31	**Observation only: Is there soap or detergent or locally used cleansing agent?** This item should be either in place or brought by the interviewee within one minute. If the item is not present within one minute check none, even if brought out later.	Soap ..... …… Detergent..... …… Ash ..... …… Mud/sand..... …… None..... …… Other ..... ……	1 2 3 4 5 8

THANK YOU VERY MUCH FOR YOUR HELPFUL PARTICIPATION!

Name of the interviewer: _____

Name and supervisor's signature after verifying survey was completed:

_____

Formulario de Consentimiento Informado

Organización: Center for Human Services (CHS)
Organización Auspiciante: USAID
Proyecto: Proyecto de Cuidado Obstétrico y Neonatal Esencial (CONE), Cotopaxi, Ecuador
Tema de la Investigación Operativa: Hacia la Comprensión de las Barreras, Oportunidades y Resultados del Cuidado Domiciliario Temprano Post-Parto a cargo de Agentes Tradicionales de Atención del Parto (parteras)

Propósito: Esta investigación examinará las barreras y oportunidades para la introducción de la atención oportuna del post-parto, incluyendo mejoras en la búsqueda de atención y el acatamiento de referencias en caso de complicaciones.

Procedimientos: La entrevista se realizará en un lugar conveniente para Ud. Se espera que la entrevista dure entre 30 minutos y una hora. Ud. será entrevistada por una persona entrenada para recolectar información.

Riesgos e incomodidad previsibles: Este estudio conlleva riesgos mínimos. Ud. puede sentirse incomoda al compartir sus opiniones o comentar sobre su rol, o los roles de otros miembros de la comunidad. A fin de minimizar los riesgos, Ud. será entrevistada por un encuestador de su mismo sexo en un lugar privado. No utilizaremos su nombre al discutir los hallazgos de la investigación.

Confidencialidad: Toda la información recolectada como parte de este estudio será confidencial. A fin de proteger su privacidad, ningún instrumento de recolección de datos, ni anotaciones realizadas, incluirán su nombre.

Participación Voluntaria: Ud. puede elegir no participar en esta evaluación si no desea hacerlo. También puede elegir el dejar de participar en cualquier momento durante la entrevista sin que esto tenga consecuencias negativas. Su participación es completamente voluntaria.

Beneficios de la Investigación: La información de este estudio se utilizará para mejorar la atención domiciliaria post-parto, el apoyo y funcionalidad de los agentes tradicionales de salud (parteras), los vínculos con el sistema de salud, y la prestación de servicios de salud en las comunidades a nivel local.

A quién Contactar: Si tiene preguntas puede realizarlas ahora o posteriormente, incluso después de que la investigación haya iniciado. Si desea hacer preguntas posteriormente, puede contactar a Mario Chávez, Co-Investigador (contacto a nivel local), por teléfono al (222-22-119) o por correo electrónico a mchavez@ecnet.ec

¿Tiene Ud. preguntas?

_____ _____
(Firma del Encuestador) (Fecha)

Nota: La firma indica que el encuestador ha leído este documento e informado a la potencial entrevistada.

¿Está Ud. de acuerdo con participar en este estudio? Sí ☐ 1 No ☐ 0

_____ _____
(Firma de la Encuestada) (Fecha)

Nota: Se requiere una firma si la potencial entrevistada sabe leer y escribir y/o puede firmar. Si la persona no sabe leer y escribir, por favor escriba N/A. En ese caso, la firma del entrevistador es suficiente.

ENCUESTA DE CONOCIMIENTOS, ACTITUDES Y PRÁCTICAS (CAP) SOBRE SALUD MATERNA Y NEONATAL 2010

A fin de ser elegible para esta encuesta, la mujer debe tener al menos un niño de 0-23 meses de edad

Pregunte a la madre si tiene niños o niñas menores de 24 meses de edad que vivan con ella. Si contesta afirmativamente, proceda con la encuesta, de lo contrario agradezca y finalice la entrevista.

Nº de cuestionario: /_____/_____/_____/

VII. IDENTIFICACIÓN GEOGRÁFICA Y MUESTRAL
1.1 PROVINCIA: _____ /_____/_____/ 1.**2** CANTÓN: _____ /____/____/____/____/
1.3 CIUDAD O PARROQUIA RURAL: _____ /____/____/____/____/____/____/____/
1.4 COMUNIDAD, BARRIO: _____
1.5 ZONA Nº: /_____/_____/_____/ 1.**6** SECTOR Nº: /_____/_____/ 1.**7** MANZANA Nº: /_____/_____/
1.8 DIRECCIÓN (Calle, camino carretero) _____

RESULTADO DE LA ENTREVISTA			
No. de visitas	**1**	**2**	**3**
Fecha de visitas	Día ____ Mes ____	Día ____ Mes ____	Día ____ Mes ____
Hora de inicio de la entrevista	Hora ____ Min. ____	Hora ____ Min. ____	Hora ____ Min. ____
Hora de finalización de la entrevista	Hora ____ Min. ____	Hora ____ Min. ____	Hora ____ Min. ____
Resultado (*)	____	____	____

(*) Código de Resultado:	
Completa …… …….. …….. 1 Encuestada no está en casa…… 2 Pospuesta …… 3 Rechazo …… 4 Otro (especifique) _____ …. 5	Nombre Entrevistador(a): _____ Nombre Supervisor(a): _____

PROCESAMIENTO	**Código**	**Fecha**
Codificado:	/_____/	_____
Digitado:	/_____/	_____

A. CARACTERÍSTICAS SOCIO-DEMOGRÁFICAS

II. CARACTERÍSTICAS SOCIO-DEMOGRÁFICAS DE LA MADRE Y NIÑO(A) MENOR DE 24 MESES DE EDAD			
2.1	¿Cuál es su edad en años cumplidos?	/_____/_____/ Años	
2.2	¿Cuál es el nivel de estudios más alto aprobado por usted? ***[Nota: Registre solo una opción de respuesta]***	No tengo estudios ..... . Primaria incompleta..... . Primaria completa ..... . Secundaria incompleta..... . Secundaria completa..... . Estudios técnicos ..... . Estudios superiores..... . Otra, cuál?_____ ……...	0 1 2 3 4 5 6 8
2.3	Cómo se identifica usted: ***[Nota: Lea en voz alta todas las opciones. Registre solo una opción de respuesta]***	Negra? …….. Mulata? ……. Blanca? ……. Mestiza? …… Indígena? …….. Otra, cuál? _____ ……	1 2 3 4 5 88
2.4	¿En qué trabaja o a qué se dedica <u>principalmente</u> usted?	Ama de casa ..... Agricultora por cuenta propia ..... Empleada doméstica..... Empleada o trabajadora en sector público …… Comerciante …….. Obrera/jornalera ..... Empleada privada ..... Estudiante ..... Otra, cuál? _____ …… No responde.....	1 2 3 4 5 6 7 8 88 99
2.5	¿Cuál es su estado civil o conyugal actual?	Soltera..... Casada..... Divorciada ..... Separada..... Viuda ..... Unión libre ..... No responde.....	1 2 3 4 5 6 99
2.6	¿Cuántos hijos(as) **<u>nacidos vivos</u>** ha tenido usted durante toda su vida?	/_____/_____/ No responde …….	 99
2.7	¿Cuántos hijos(as) actualmente vivos tiene, aunque no vivan con usted?	/_____/_____/ No responde …….	 99
2.8	¿Cuál es el nombre de su hijo más pequeño o de menor edad?	_____	
2.9	Sexo del niño(a):	Hombre …… Mujer ……	1 2
2.10	En qué fecha nació (NOMBRE)?	Día: /_____/_____/ Mes: /_____/_____/ Año: /_____/_____/_____/_____/	
2.11	***ENTREVISTADOR(A):*** *calcule los meses de edad que tiene (NOMBRE). Si tiene menos de un mes, ponga "00"*	/_____/_____/ Meses	

A. PRÁCTICAS Y ATENCIÓN DURANTE EL EMBARAZO

III. PRÁCTICAS Y ATENCIÓN DURANTE EL EMBARAZO			
3.1	¿Tuvo algún control prenatal cuando estuvo embarazada de (NOMBRE)?	Sí …… No ……..	1 2→**3.21**
3.2	¿Cuando estaba embarazada de (NOMBRE), cuántos meses de embarazo tenía cuando le hicieron el primer control?	/_____/ Meses	

3.3	¿Dónde recibió control prenatal? [**Nota: Registre todas las respuestas proporcionadas por la mujer. No lea la lista de posibles respuestas.** ***Los saltos deben realizarse solo en caso de tener respuesta única en las opciones 2 o 3***]	En casa (de ella)…… 1 En la comunidad…… 2→**3.6** En una Unidad de Salud…… 3→**3.15** No Aplica …… 9	
Uso de Servicios Prenatales en el Hogar o la Comunidad			
3.4	**Si fue en el hogar**, ¿de quién recibió control prenatal? ***[Nota: Registre todas las respuestas dadas por la señora.]***	Trabajador Comunitario de Salud…… 1 Partera Tradicional…… 2 Personal de salud calificado (doctor, enfermera, obstetriz)…… 3 Otro (Especifique):_____ 4 No Aplica …… 99	
3.5	¿Cuántas veces recibió control prenatal **en su hogar** durante su último embarazo?	/_____/_____/ Nº de controles No Aplica…… …… 99	
3.6	***Entrevistador(a), revise la pregunta 3.3. Si la señora recibió control prenatal en la Comunidad, haga las siguientes preguntas; caso contrario, pase a 3.8:*** Si fue en la comunidad, ¿de quién recibió control prenatal? ***[Nota: Registre todas las respuestas.]***	Trabajador Comunitario de Salud …… 1 Partera Tradicional…… 2 Personal de salud calificado (doctor, enfermera, obstetriz)…… 3 Otro (Especifique):_____ 4 No Aplica …… 99	
3.7	¿Cuántas veces recibió control prenatal durante su último embarazo en la comunidad?	/_____/_____/ Nº de controles No Aplica…… …… 99	
¿Recibió la mujer al menos 4 visitas prenatales en su hogar y/o en la comunidad? Sí___ No___			
Contenido de los Servicios Prenatales en el Hogar o la Comunidad			
3.8	Durante el control prenatal dado **en el hogar (o en la comunidad)** por *["nombre de la persona que le atendió"]*, ¿Recibió consejería sobre cómo prepararse para el parto?	SÍ …… 1 No …… 2 No sabe / no recuerda…… 9 No Aplica…… 99	
3.9	Durante el control prenatal realizado **en el hogar (o en la comunidad)**, ¿Recibió consejería sobre señales de peligro que pueden indicar que una mujer embarazada está con complicaciones y necesita consultar a un trabajador de la salud?	SÍ …… 1 No …… 2 No sabe / no recuerda…… 9 No Aplica…… 99	
3.10	¿Qué otros servicios/atención recibió de *["nombre de la persona que le atendió"]*?: ***[Nota: NO lea la lista de posibles respuestas. Registre todas las respuestas proporcionadas por la mujer.]***	Recibió ácido fólico…… 1 Recibió Hierro…… 2 Recibió la vacuna antitetánica…… 3 Recibió consejería sobre la importancia de comer más / comer variedad de alimentos…… 4 Examen físico para identificar complicaciones maternas durante el embarazo…… 5 Recibió consejería sobre señales de peligro…… 6 Recibió consejería sobre preparación del parto…… 7 Recibió consejería sobre cuidados del recién nacido 8 Recibió información sobre planificación familiar…. 9 Otro (Especifique): _____ 88 No Aplica…… …… 99	
3.11	["*nombre de la persona que le atendió*"] ¿Le dijo que Ud. tenía un problema relacionado a su embarazo y que era necesario acudir a un establecimiento de salud para recibir atención especial?	SÍ …… 1 No …… 2→**3.15** No sabe / no recuerda…… 9→**3.15** No Aplica…… 99	
3.12	Si fue así, ***["nombre de la persona que le atendió"]*** ¿Le sugirió que vaya a un establecimiento de salud por problemas relacionados a su embarazo?	SÍ …… 1 No …… 2→**3.15** No sabe / no recuerda…… 3→**3.15** No Aplica…… 99	
3.13	¿Pudo ir al establecimiento de salud dentro del lapso de tiempo recomendado por ***["nombre de la***	SÍ …… 1 No …… 2	

	persona que le atendió"]?	No sabe / no recuerda…… No Aplica.....……	9 99
3.14	¿Quién fue la principal persona que tomó la decisión de permitir que Ud. acuda al establecimiento de salud? ***[Nota: Registre sólo una respuesta.]***	Ella misma…… Esposo/Pareja/Compañero…… Jefe/Jefa de hogar..... …… La mujer de más edad en el hogar…… Ella y su esposo/compañero…….. Otro (Especifique): _____ No sabe / no recuerda…… No Aplica.....……	1 2 3 4 5 8 99 99
Atención Prenatal en el Centro de Salud			
3.15	¿Conoce Ud. Si hay alguna unidad de salud que ofrezca atención a mujeres embarazadas, madres y recién nacidos en esta parroquia o cantón?	SÍ …….. No …… No sabe / no recuerda……	1 2 99
3.16	***<u>Entrevistador(a),</u> revise la pregunta 3.3.*** ***Si la señora recibió atención prenatal en un Establecimiento de Salud, haga las siguientes preguntas; caso contrario, pase a 3.21:*** Si Ud. se hizo controles del embarazo en un Establecimiento de Salud cuando estaba embarazada de (NOMBRE), ¿A qué Establecimiento de Salud fue **<u>con mayor frecuencia</u>?**	Hospital/Maternidad del MSP …… Centro de Salud/Subcentro del MSP …… Hospital/Dispensario del IESS …….. Seguro Social Campesino …… Hospital/Dispensario de FF.AA. ó Policía …… Clínica/Médico privado …… Consultorio de empresa donde trabaja …… Otro, cuál? _____ …. No sabe/no responde ……..	1 2 3 4 5 6 7 88 99
3.17	¿Quién le realizó más controles cuando estuvo embarazada de (NOMBRE)?	Médico(a) …….. Obstetriz …… Enfermera …….. Auxiliar de enfermería …… Partera o comadrona …….. Otra, cuál? _____ …… No sabe/no recuerda ……..	1 2 3 4 5 8 9
3.18	¿Cuántos controles del embarazo se hizo en un Establecimiento de Salud durante el embarazo de (NOMBRE)?	/_____/_____/ Nº de controles No Aplica …….	 99
3.19	En ese establecimiento de salud, durante el control prenatal, ¿Recibió algún tipo de consejería sobre <u>cómo identificar señales de peligro</u> para usted o para (NOMBRE) que iba a nacer?	SÍ …….. No …… No sabe / no recuerda……	1 2 9
3.20	En ese establecimiento de salud, durante el control prenatal, ¿Recibió algún tipo de consejería sobre <u>cómo prepararse para el parto y nacimiento</u> de (NOMBRE)?	SÍ …….. No …… No sabe / no recuerda……	1 2 9
¿Hizo la mujer al menos 4 visitas prenatales al Establecimiento de Salud durante su último embarazo? **Sí___ No___**			
¿Tuvo la mujer al menos 4 visitas prenatales combinadas entre la comunidad y el Establecimiento de Salud durante su último embarazo? **Sí___ No___**			
Vacunación contra el tétanos durante el embarazo			
3.21	Durante su embarazo de (NOMBRE), ¿Recibió una inyección en el brazo para evitar que el bebé contraiga tétanos (*convulsiones*), después del parto?	SÍ …….. No …… No sabe / no recuerda……	1 2 9 } **3.23**
3.22	Cuando estuvo embarazada de (NOMBRE), ¿Cuántas veces recibió ésta inyección?	/_____/ Nº de veces	
3.23	¿Recibió una inyección contra el tétanos en cualquier momento antes del embarazo de (NOMBRE)?	SÍ …….. No …… No sabe / no recuerda……	1 2 9 } **3.25**

3.24	Antes del embarazo de (NOMBRE), ¿Cuántas veces recibió una inyección contra el tétanos?	/_____/ Nº de veces	
Recibió al menos 2 inyecciones de Toxoide Tetánico antes del nacimiento de su hijo menor: Sí___ No___			
Preparación para el parto			
3.25	¿Qué preparativos realizaron Ud. y su familia antes del nacimiento de (NOMBRE)? **[Registre todas las respuestas dadas por la mujer. No lea las respuestas posibles.]**	Identificar el establecimiento de salud donde acudiría para dar a luz..... 1 Identificar un proveedor calificado o partera para atender el parto..... 2 Identificar un lugar donde ir en caso de emergencia… 3 Tener dinero ahorrado..... 4 Preparar una maleta para el parto (ropa, jabón, ropa de bebé, etc.)..... 5 Identificar un medio de transporte para salir rápido en caso de emergencia..... 6 Identificar un donante de sangre..... 7 Planificar el apoyo de miembros de la familia (ayudantes, cuidadores de niños, etc.)..... 8 Preparar documentos (cedula, carné en caso de tener seguro, etc.)..... 9 Otro:_____ 88 No hicieron preparativos..... 99	
¿La mujer implementó al menos 2 elementos de la preparación para el parto? Sí___ No___			
3.26	¿Qué cree Ud. qué debe hacer una mujer embarazada y su familia para prepararse adecuadamente para el parto? ***[Registre todas las respuestas dadas por la encuestada. No lea la lista de posibles respuestas.]***	Identificar el establecimiento de salud donde acudiría para dar a luz..... 1 Identificar un proveedor calificado o partera para atender el parto..... 2 Identificar un lugar donde ir en caso de emergencia… 3 Tener dinero ahorrado..... 4 Preparar una maleta para el parto (ropa, jabón, ropa de bebé, etc.)..... 5 Identificar un medio de transporte para salir rápido en caso de emergencia..... 6 Identificar un donante de sangre..... 7 Planificar el apoyo de miembros de la familia (ayudantes, cuidadores, de niños, etc.)..... 8 Preparar documentos (cedula, carnet en caso de tener seguro, etc.)..... 9 Otro:_____ 88 No se hicieron preparativos..... 99	
¿La mujer conoce al menos 2 elementos de la preparación para el parto? Sí___ No___			
Señales de peligro para mujeres embarazadas			
3.27 (I10)	**<u>Durante el embarazo</u>**, una mujer puede presentar problemas o enfermedades graves y debería ir, inmediatamente a un establecimiento de salud. ¿Qué señales de peligro harían que Ud. busque atención inmediata en un establecimiento de salud? ***(MARQUE TODAS LAS RESPUESTAS ESPONTÁNEAS QUE COINCIDAN CON LAS ALTERNATIVAS)****. Repita la pregunta añadiendo* ***¿Y qué más?***	Dolor fuerte del abdomen …… 1 Dificultad para respirar…….. 2 Sangrado vaginal …….. 3 Calentura o fiebre ……. 4 Salida del agua de fuente …… 5 Hinchazón de pies, manos o cara ……. 6 No se mueve el niño/a ……. 7 Desmayo, pérdida de conciencia …….. 8 Dolor de cabeza/visión borrosa..…… 9 Convulsiones..... 10 Secreción vaginal de mal olor……. 11 Otro, cuál? _____ …… 88	

		No sabe / No responde ……..	99
¿La mujer conoce al menos 2 signos de peligro para una mujer embarazada? **Sí___ No___**			
3.28	Si quedara usted nuevamente embarazada y si tuviera algún problema, malestar o complicación **durante el embarazo**, ¿Buscaría algún tipo de atención?	SÍ …….. No …….. No sabe	1 2→**4.1** 9→**4.1**

3.29	¿A dónde acudiría **principalmente**?	Hospital/Maternidad del MSP …… Centro de Salud/Subcentro del MSP …… Hospital/Dispensario del IESS …….. Seguro Social Campesino …… Hospital/Dispensario de FF.AA. ó Policía …… Clínica/Médico privado …… Consultorio de empresa donde trabaja …… Partera …….. Otro, cuál? _____ …. No sabe/no responde ……...	1 2 3 4 5 6 7 8 88 99

B. ATENCIÓN DURANTE LA LABOR DE PARTO Y NACIMIENTO

IV. Señales de peligro durante el parto			
4.1	Durante la labor y el parto, ¿Qué molestias, síntomas o señales cree usted que indican que hay peligro para la madre o para el bebé y que alertan a la mujer para que busque atención inmediata de un proveedor de salud calificado? ***(MARQUE TODAS LAS RESPUESTAS ESPONTÁNEAS QUE COINCIDAN CON LAS ALTERNATIVAS)****. Repita la pregunta añadiendo* ***¿Y qué más?***	El bebé está en una posición incorrecta..... Movimiento fetal mínimo o inexistente..... Labor de parto prolongada..... Fiebre …… Dolor de cabeza / Visión borrosa..... Convulsiones …… Dificultad para respirar..... Placenta está retenida …… Pérdida de conciencia / desmayo …… Hemorragia/ sangrado abundante o fuerte ……..... Otro, Especifique _____ No sabe/no responde ……..	1 2 3 4 5 6 7 8 9 10 88 99
¿La mujer conoce al menos 2 signos de peligro durante el parto? **Sí___ No___**			
Atención , lugar del parto y prácticas Inmediatas post-parto			
4.2	¿Dónde dio a luz a (NOMBRE)? ***[Nota: Escoja solo una respuesta]***	Hospital/Maternidad del MSP …… Centro de Salud/Subcentro del MSP …… Hospital/Dispensario del IESS …….. Seguro Social Campesino …… Hospital/Dispensario de FF.AA. ó Policía …… Clínica/Médico privado …… En casa con partera..... En casa con algún familiar..... En casa, sola..... Otro, cuál? _____ …. No sabe/no responde ……..	1 2 3 4 5 6 7 8 9 88 99
4.3	¿Quién le atendió durante el parto de (NOMBRE)? ***[Registre sólo una respuesta. Si la mujer menciona más de un proveedor, seleccione al más calificado.]***	Médico(a) …… Obstetriz …… Enfermera …… Partera o comadrona..... Familiar…… Dio a luz sola…… Otro, cuál? _____ …… No sabe/no recuerda ……..	1 2 3 4 5 6 8 9

¿La mujer fue atendida por un proveedor de salud calificado durante su último parto? **Sí___ No___**			
4.4	***Entrevistador(a): Vea P 4.2, si la mujer dio a luz en un establecimiento de salud, realice la siguiente pregunta, caso contrario pase a la pregunta 4.5*** ¿Recomendaría Ud. a un familiar o amiga el establecimiento de salud donde dio a luz a (NOMBRE)?	Sí …….. No …… No sabe .....…… No Aplica.....……	1 2 **4.10** 9 99
4.5	***Entrevistador(a): Vea P 4.2, si la mujer NO dio a luz en un establecimiento de salud, pregunte:*** ¿Cuál es la principal razón por la cual Ud. no dio a luz a (NOMBRE) en un establecimiento de salud?	Barreras geográficas (distancia, malo el camino, etc).. No tuvo tiempo para llegar allí..... Esposo/pareja se opuso..... Familiares se opusieron..... No tuvo dinero para pagar..... La atención del establecimiento de salud es mala..... El parto en casa es costumbre o tradición..... Otro, cuál? _____ ……... No sabe/no recuerda …….... No Aplica …….....	1 2 3 4 5 6 8 9 88 99
4.6	¿Se colocó algo en el cordón umbilical, ya sea antes o después de que fuera cortado?	Sí..... No..... No sabe/ no recuerda.....	1 2→**4.8** 9→**4.8**
4.7	¿Qué se colocó principalmente en el cordón umbilical?	Remedios tradicionales (infusiones de hierbas, ungüentos, emplasto)..... Antisépticos (alcohol, agua oxigenada, etc.)..... Otro, cuál: _____ No sabe/ no recuerda..... No Aplica.....	1 2 8 88 99
4.8	¿Fue (NOMBRE) secado (limpiado) inmediatamente después del parto, antes de que la placenta fuera expulsada?	Sí..... No..... No sabe/ no recuerda.....	1 2 9
4.9	¿Fue (NOMBRE) envuelto en un paño o manta abrigada inmediatamente después del parto, antes de que la placenta fuera expulsada?	Sí..... No..... No sabe/ no recuerda.....	1 2 9
4.10	¿Cuánto tiempo después del parto dio el seno a (NOMBRE) por primera vez?	Inmediatamente …….. Horas: _____ Días: _____ Otro, Especifique: _____ … No recuerda ……	87 88 99
El bebé fue amamantado dentro de una hora después del parto **Sí____ No____**			
¿Se proporcionaron Cuidados Esenciales del Recién Nacido? (secado/abrigo; cuidados del cordón; lactancia materna al cabo de una hora) **Sí____ No____**			
Manejo de emergencias obstétricas durante partos domiciliarios			
4.11	***Entrevistador(a): Vea P 4.2, si la mujer dio a luz en su casa, realice la siguiente pregunta, caso contrario pase a la P.4.19 :*** ¿Tuvo algún problema serio (que afectó a Ud. o al recién nacido) durante el parto de (NOMBRE) por el cual tuvo que buscar ayuda inmediata?	Sí..... No..... No sabe/ no recuerda..... No Aplica.....	1 2→**4.19** 9→**4.19** 99
4.12	¿Qué problema serio o situación de emergencia tuvo (Ud. o su bebé)?	_____ No Aplica	 99

4.13	¿Le dijo ["nombre de la persona que le atendió"] que Ud. tenía un problema relacionado al parto por el cual debería acudir a un establecimiento de salud?	Sí..... No..... No sabe/ no recuerda..... No Aplica.....	1 2 9 99
4.14	Durante su parto en casa, ["nombre de la persona que le atendió"], ¿Le dijo que vaya a un establecimiento de salud por un problema relacionado al parto?	Sí..... No..... No sabe/ no recuerda..... No Aplica.....	1 2 9 99
	Referencia al establecimiento de Salud durante el parto, por partera, promotor comunitario, o personal de salud: Sí____ No____		
4.15	¿Fue al establecimiento de salud para recibir atención por este problema?	Sí..... No..... No Aplica.....	1 2→**4.19** 99
	Acatamiento de la referencia: Sí____ No____		
4.16	Si fue así, qué cosa ayudó para llegar hasta el establecimiento de salud? ***[Registre todas las respuestas dadas por la encuestada. No lea las posibles respuestas.]***	Tuvo acceso inmediato al transporte (vehículo y combustible) ..... Coordinación por parte del "esposo u otro miembro de la familia" que facilite la salida ..... Método de comunicación con el sistema de salud .... Disponibilidad de un/a "dirigente" seleccionado que facilite la salida al establecimiento de salud..... Disponibilidad de un "promotor de salud comunitario" que facilite la salida ..... Acceso inmediato a forma de pago ..... Acceso inmediato a un proveedor calificado..... Acompañamiento de un trabajador de salud comunitario ..... Otro, [especifique]: _____ No responde.....	1 2 3 4 5 6 7 8 88 99
4.17	Finalmente, ¿Pudo Ud. llegar al establecimiento de salud?	Sí..... No..... No Aplica.....	1 2 9
4.18	¿Quién tomó la decisión de permitir (o no permitir) que Ud. acuda al establecimiento de salud? ***[Registre una sola respuesta.]***	Ella misma…… Esposo/compañero…… Ella y su esposo/compañero…… Jefe(a) de hogar..... …… La mujer de más edad en el hogar…… Otro (Especifique): _____ No sabe / no recuerda…… No Aplica.....	1 2 3 4 5 8 9 99
4.19	Si quedara usted nuevamente embarazada y si tuviera algún problema, malestar o complicación **durante el parto**, ¿Buscaría algún tipo de atención?	SÍ …… No …… No sabe	1 2→ **5.1** 9→ **5.1**
4.20	¿A dónde **principalmente** acudiría?	Hospital/Maternidad del MSP …… Centro de Salud/Subcentro del MSP …… Hospital/Dispensario del IESS …….. Seguro Social Campesino …… Hospital/Dispensario de FF.AA. ó Policía …… Clínica/Médico privado …… Consultorio de empresa donde trabaja …… Partera …….. Otro, cuál? _____ …. No sabe/no responde ……..	1 2 3 4 5 6 7 8 88 99

C. ATENCIÓN POST-PARTO

	V. Uso de servicios de atención post-parto		
5.1	***[Encuestador: Vea la P. 4.2. Si la mujer dio a luz en un establecimiento de salud, realice la siguiente***	Sí..... No.....	1 2

	pregunta, caso contrario pase a la P 5.2:] ¿Después de dar a luz a (NOMBRE) en el establecimiento de salud, permaneció allí por lo menos 2 días?	No Aplica.....	99
5.2	Recibió atención o consejería post-parto por parte de un proveedor de salud **durante los 2 días posteriores al parto** de (NOMBRE)?	Sí..... No..... No Aplica.....	1→ **5.4** 2 99
5.3	¿Recibió atención o consejería para el post-parto **durante la primera semana** después del nacimiento de (NOMBRE), ya sea en casa, comunidad, o en el establecimiento de salud?	Sí..... No..... No Aplica.....	1 2 →**5.8** 99
5.4	Si fue así, ¿Dónde recibió atención/consejería post-parto? ***[Registre todas las respuestas dadas por la encuestada. No lea las posibles respuestas.]***	Visita domiciliaria de partera tradicional..... Visita domiciliaria de Trabajador Comunitario de Salud Visita domiciliaria de personal de salud calificado..... Centro de Salud/Hospital..... Clínica Privada…….. No Aplica……	1 2 3 4→**5.8** 5→**5.8** 99
Recibió atención post-parto dentro de 2 días después del parto: Sí____ No____			
Contenido/Calidad de las visitas domiciliarias post-parto			
5.5	Durante la visita domiciliaria post-parto, recibió consejería sobre los siguientes temas: ***(Lea cada una de las alternativas y marque el código de cada una si dice que si)*** ***[Nota: Asegúrese de que la mujer entiende bien lo que Ud. preguntó.]***	Lo que debe hacer una madre para dar un buen cuidado a su bebé? …….. Lactancia materna y nutrición del bebé? …… Cuidados y señales de peligro en el recién nacido? … Cuidados y señales de peligro en la madre?.....… Planificación Familiar?…… Visitas postnatales al centro de salud? …….. La importancia de comer más y/o comer variedad de alimentos? …….. No Aplica……..	1 2 3 4 5 6 7 99
5.6	¿Qué otros servicios/consejería **para su recién nacido** recibió durante las visitas domiciliarias realizadas después del parto? ***[Registre todas las respuestas dadas por la encuestada. No lea las posibles respuestas.]***	Registro del nacimiento…… Examen físico del recién nacido…….. Vacunación del recién nacido…….. Otro [especifique]:_____ No sabe/no responde …….. No Aplica ……	1 2 3 8 88 99
5.7	¿Qué otros servicios/consejería **para Ud. misma** recibió durante las visitas domiciliarias realizadas después del parto? ***[Registre todas las respuestas dadas por la encuestada. No lea las posibles respuestas.]***	Examen físico para detectar complicaciones maternas Entrega de Vitamina A …… Planificación Familiar…… Otro [especifique]: _____ No sabe/no responde …….. No Aplica ……..	1 2 3 8 88 99
Señales de peligro para la mujer que dio a luz recientemente (Puérpera) y el recién nacido			
5.8	En su opinión, ¿Qué síntomas le harían pensar que un recién nacido está enfermo y debería recibir inmediatamente atención en un establecimiento de salud? ***[Registre todas las respuestas dadas por la encuestada. No lea las posibles respuestas.]*** *Repita la pregunta añadiendo* ***¿Y qué más?***	El bebé no llora inmediatamente después del nacimiento …..... Dificultades respiratorias, respiración agitada…….. El bebé esta frío…… Fiebre..... Incapacidad o rechazo para lactar/conectarse al pecho..... Aletargamiento, inactividad..... Convulsiones ……..... Pústulas o lesiones en la piel..... Pus o enrojecimiento del cordón umbilical ..... Otro [especifique]: _____ No sabe/no responde ……..	1 2 3 4 5 6 7 8 9 88 99

5.9	En su opinión, ¿Qué síntomas le harían pensar que una mujer que recién ha dado a luz está enferma y debería recibir inmediatamente atención en un establecimiento de salud? ***[Registre todas las respuestas dadas por la encuestada. No lea las posibles respuestas.]*** *Repita la pregunta añadiendo* ***¿Y qué más?***	Fiebre…… …… Dificultad para respirar…… Secreción vaginal de mal olor…… Hemorragia …… Dolor de cabeza / visión borrosa..... Dolor fuerte del vientre (la matriz)..... Desmayo / convulsiones…… Dolor en las pantorrillas……. Otro, Especifique _____ No sabe/no responde ……..	1 2 3 4 5 6 7 8 88 99
¿La mujer conoce al menos 2 señales de peligro para el recién nacido? Sí____ No____			
¿La mujer conoce al menos 2 señales de peligro para una mujer que recientemente ha dado a luz? Sí____ No____			
Manejo de emergencias después del parto			
5.10	¿Tuvo Ud. un problema serio (o una emergencia) en casa después del parto de (NOMBRE), por el cual tuvo que buscar ayuda inmediata?	Sí..... No..... No Aplica.....	1 2→**5.17** 99
5.11	Si fue así, qué problema serio (situación de emergencia) tuvo?	_____ _____ No Aplica ……	 99
5.12	¿Acudió inmediatamente al establecimiento de salud?	Sí..... No..... No Aplica.....	1 2 99
5.13	***[Nota: Vea la P. 5.4 si recibió visita domiciliaria postparto haga las siguientes preguntas; caso contrario, pase a P. 5.17]*** La persona que le atendió, ¿Le dijo que Ud. tenía un problema relacionado al <u>post-parto</u> por el cual debería acudir a un establecimiento de salud?	Sí..... No..... No Aplica.....	1 2→**5.17** 99
5.14	La persona que le atendió, ¿le envió al establecimiento de salud por cualquier problema posterior al parto?	Sí..... No..... No Aplica.....	1 2→**5.17** 99
Referida al establecimiento de salud durante el período post-parto: Sí____ No____			
5.15	Si fue así, ¿Pudo Ud. ir al establecimiento de salud dentro del lapso de tiempo recomendado?	Sí..... No..... No Aplica.....	1 2 99
Acatamiento de la referencia post-parto: Sí____ No____			
5.16	¿Quién tomó la decisión de permitir (o no permitir) que Ud. acuda al establecimiento de salud? ***[Registre sólo una respuesta. No lea la lista de posibles respuestas.]***	Ella misma…… Esposo/compañero…… Ella y su esposo/compañero…… Jefe(a) de hogar..... …… La mujer de más edad en el hogar…… Otro (Especifique): _____ No sabe / no recuerda…… No Aplica.....	1 2 3 4 5 8 9 99
5.17	Si Ud. quedara nuevamente embarazada y si tuviera algún problema, malestar o complicación **<u>durante el postparto</u>**, ¿Buscaría algún tipo de atención?	SÍ …… No …… No sabe	1 2 →**5.19** 9
5.18	¿A dónde acudiría **principalmente**?	Hospital/Maternidad del MSP …… Centro de Salud/Subcentro del MSP …… Hospital/Dispensario del IESS …….. Seguro Social Campesino …… Hospital/Dispensario de FF.AA. ó Policía …… Clínica/Médico privado ……	1 2 3 4 5 6

		Consultorio de empresa donde trabaja ……	7
		Partera ……..	8
		Otro, cuál? _____ ….	88
		No sabe/no responde ……..	99
Atención al recién nacido			
5.19	En su opinión, cuál es el lapso mínimo de tiempo después del parto en que una mujer y su bebé deberían recibir atención postparto (en su casa o en el establecimiento de salud)? ***[Registre sólo una respuesta. No lea las posibles respuestas.]***	1 o 2 días.....	1
		3-6 días.....	2
		1 o 2 semanas.....	3
		3-6 semanas……..	4
		Mas de 6 semanas…….	5
		No sabe/no responde ……	9
5.20	Si quedara usted nuevamente embarazada y **<u>si su bebé</u>** tuviera algún problema, malestar o complicación, ¿Buscaría algún tipo de atención?	SÍ ……..	1
		No …….	2 → **5.22**
		No sabe	9
5.21	¿A dónde acudiría **principalmente**?	Hospital/Maternidad del MSP ……	1
		Centro de Salud/Subcentro del MSP ……	2
		Hospital/Dispensario del IESS ……..	3
		Seguro Social Campesino …….	4
		Hospital/Dispensario de FF.AA. ó Policía ……	5
		Clínica/Médico privado ……	6
		Consultorio de empresa donde trabaja ……	7
		Partera ……..	8
		Otro, cuál? _____ ….	88
		No sabe/no responde ……..	99
5.22	¿Qué sustancias aplicó en el cordón umbilical del bebé después del nacimiento? ***[Registre sólo una respuesta. No lea las alternativas.]***	Remedios tradicionales (infusiones de hierbas, ungüentos, emplasto).....	1
		Antisépticos (alcohol, agua oxigenada, etc.).....	2
		Otro, cuál: _____	8
		No sabe/ no recuerda.....	9
		No Aplica.....	99
5.23	En su opinión, ¿Qué debe hacer una madre para cuidar adecuadamente de su bebé después del nacimiento? ***[Registre todas las respuestas proporcionadas por la encuestada. No lea las posibles respuestas.]***	Secar al recién nacido inmediatamente después del parto.....	1
		Establecer contacto piel con piel con la madre.....	2
		Retrasar el baño del bebé por al menos 6 horas.....	3
		Cubrir la cabeza del bebé con un gorro o paño para mantenerlo abrigado.....	4
		Iniciar la lactancia materna dentro de la primera hora después del nacimiento.....	5
		Dar al recién nacido leche materna exclusivamente..	6
		No colocar nada en el cordón umbilical.....	7
		Lavarse las manos frecuentemente.....	8
		Otro, Especifique:_____	88
		No responde.....	99
¿Puede la madre identificar al menos 2 elementos de los cuidados del recién nacido? Sí____ No____			
Lactancia materna / Alimentación de infantes y niños pequeños			
5.24	¿En qué momento después del nacimiento de (NOMBRE) inició la lactancia materna? ***[Registre sólo una respuesta.]***	En la primera hora ……	1
		2-6 horas después del nacimiento ……	2
		Más de 6 horas después del nacimiento …….	3
		Nunca ……	4
		No sabe / no responde ……	9
5.25	¿A qué edad empezó a darle a su bebé alimentos o líquidos diferentes a la leche materna, como agua, papilla de maíz o cereal, etc.? ***<u>[Registre sólo una respuesta.]</u>***	Desde el nacimiento ……	1
		1 o 2 meses ……..	2
		3 -5 meses ……	3
		Después de los 6 meses ……	4
		No sabe / no responde ……	9
5.26	**Entrevistador(a): Vea en P. 2.11** si el bebé tiene menos de 6 meses de edad. Si es así pregunte:	Sí.....	1
		No.....	2

	¿Durante las últimas 24 horas, (NOMBRE) ha sido alimentado exclusivamente con leche materna? ***(Si el bebé tiene más de 6 meses de edad pase a la pregunta 6.1)***	No aplica……..	99

D. Indicadores Rapid Catch

	VI. PLANIFICACIÓN FAMILIAR		
6.1	¿Está actualmente haciendo algo o utilizando algún método para postergar o evitar un embarazo?	Sí..... No.....	1 2 →**6.3**
6.2	¿Qué método está usando Ud. (o su esposo/ pareja)? ***No lea las opciones. Codifique solamente una respuesta. Si menciona más de un método, pregunte:*** ¿Cuál es el método principal que Ud. (o su esposo/ pareja) usa(n) para evitar o postergar el embarazo? ***Si la encuestada menciona tanto condones como el método de días fijos, codifique como "12" para el "método de días fijos".***	Esterilización femenina (ligadura)…..... Esterilización masculina (vasectomía)..... Píldora..... Dispositivo intra-uterino (T de cobre, espiral)..... Inyectables……..... Implantes (norplant)……..... Condón…..……..... Condón femenino..……..... Diafragma……..... Espuma/gel..……..... Método de lactancia y amenorrea..…..... Método de ritmo (días fijos) / collar del ciclo…… Retiro……..……..... Abstinencia (no tiene relaciones sexuales)…… Otro, Especifique:_____	1 2 3 4 5 6 7 8 9 10 11 12 13 14 88
	Usa un método anticonceptivo moderno? Sí____ No____		
6.3	En su opinión, ¿Cuánto tiempo debe una mujer dejar pasar entre dos partos?	Menos de 2 años …….. 2-4 años …… 5 años y más …… Cuando ella quiera …….. No sabe/no responde ……	1 2 3 4 9
	Lactancia materna/ Alimentación de infantes y niños pequeños		
6.4	Ahora me gustaría preguntarle sobre líquidos o alimentos que (NOMBRE) ingirió ayer durante el día o la noche. (NOMBRE) comió o bebió: ***Lea la lista de líquidos (de la A hasta la E, comenzando con "Leche materna").***	**SI NO NO SABE**	
	F. Leche materna?	1 2 9	
	G. Agua simple?	1 2 9	
	H. Fórmula infantil producida para el mercado?	1 2 9	
	I. Cualquier alimento fortificado para infantes y niños pequeños disponible en el mercado" [p. ej. Cerelac]?	1 2 9	
	J. Cualquier (otro) puré o papilla?	1 2 9	
6.5	Ahora quisiera preguntarle sobre (otros) líquidos o alimentos que (NOMBRE) ingirió ayer durante el día o la noche, incluso si fue en combinación con otras comidas. ¿(NOMBRE) bebió o comió:		
	GRUPO 1: LACTEOS	**SÍ NO NS**	
	Revise la pregunta.6.4 C – si la respuesta es afirmativa, seleccione "sí" aquí Y. Formula infantil producida para el mercado?	1 2 9	
	Z. Leche, ya sea enlatada, en polvo, o leche animal fresca?	1 2 9	
	AA. Queso, yogurt, u otros productos lácteos?	1 2 9	

	GROUPO 2: GRANOS	**SÍ NO NS**	
6.6	***Revise la Preg. 6.4 D – si la respuesta es afirmativa, seleccione "sí" aquí*** BB. Cualquier alimento fortificado para infantes y niños pequeños disponible en el mercado (p. ej. Cerelac)?	1 2 9	
	Revise la preg.6.4 E – si la respuesta es afirmativa, seleccione "sí" aquí CC. Cualquier (otro) puré o papilla?	1 2 9	
	DD. Pan, arroz, fideos, u otros alimentos hechos con granos?	1 2 9	
	EE. Papas, melloco, oca, camote, yuca, o cualquier otro alimento hecho con raíces?	1 2 9	
	GROUPO 3: VEGETALES RICOS EN VITAMINA A	**SÍ NO NS**	
	FF. Zambo, zanahoria, zapallo, que son de color amarillo o anaranjado por dentro?	1 2 9	
6.7	GG. Algún vegetal que tenga hojas de color verde obscuro?	1 2 9	
	HH. Mangos, papayas, maduros (incluya cualquier otra fruta rica en vitamina A disponible a nivel local)?	1 2 9	
	GRUPO 4: OTRAS FRUTAS / VEGETALES	**SÍ NO NS**	
6.8	II. Cualquier otra fruta o vegetal, como naranjas, toronjas, piña, palmito?	1 2 9	
	GRUPO 5: HUEVOS	**SÍ NO NS**	
6.9	JJ. Huevos?	1 2 9	
	GRUPO 6: CARNE, AVES, PESCADO	**SÍ NO NS**	
	KK. Hígado, riñón, corazón u otros órganos?	1 2 9	
6.10	LL. Cualquier carne, como res, cerdo, borrego, cabra, pollo, cuy, conejo, o pato?	1 2 9	
	MM. Pescado fresco o seco, o mariscos?	1 2 9	
	NN. Larvas, caracoles, insectos, otros alimentos de proteínas pequeñas?	1 2 9	
	GRUPO 7: LEGUMBRES / NUECES	**SÍ NO NS**	
6.11	OO. Algún alimento hecho con fréjol, habas, arvejas, quínoa, chochos, lentejas, o nueces?	1 2 9	
	GRUPO 8: ACEITES/GRASAS	**SÍ NO NS**	
	PP. Aceites, grasas, mantequilla, o comidas hechas con cualquiera de estos?	1 2 9	
6.12	QQ. **Revise: ¿Cuántos grupos alimenticios (grupos 1-8 de la tabla anterior) tienen al menos un 'sí' señalado?**	**Número de Grupos** ☐	
	GRUPO 9: OTROS ALIMENTOS	**SÍ NO NS**	
	RR. Té o café?	1 2 9	
	SS. Cualquier otro líquido?	1 2 9	
6.13	TT. Cualquier alimento con azúcar, como chocolates, caramelos, dulces, masas, pasteles, o biscochos?	1 2 9	
	UU. Algún otro alimento sólido o blando?	1 2 9	

	¿Cuántas veces (NOMBRE) comió alimentos sólidos, semisólidos, o blandos, sin contar los líquidos, ayer durante el día o la noche? ***ENCUESTADORA: Si la encuestada responde siete o más veces, registre "7" Los refrigerios y comidas pequeñas, como uno o dos bocados de la comida de la madre o hermana, no deben tomarse en cuenta.*** ***Los líquidos no cuentan para esta pregunta. No incluya sopas livianas, o caldo, papillas liquidas, o cualquier otro líquido. Use preguntas que ayuden a la encuestada a recordar todas las veces en que el niño comió ayer (en desayuno, la cena)***	NÚMERO DE VECES ☐ NO SABE 9	
Suplementos con Vitamina A			
6.14	¿(NOMBRE) ha recibido alguna vez una dosis de Vitamina A (como cualquiera de éstas)?	SÍ ..... No ..... No sabe	1 2 →**6.16** 9→**6.16**
6.15	¿(NOMBRE) ha recibido una dosis de Vitamina A en los últimos 6 meses?	SÍ ..... No ..... No sabe	1 2 9
Vacunación infantil			
6.16	¿Tiene un carné o libreta de salud infantil de (Nombre) donde estén registradas las vacunas y dosis de Vitamina A (capsulas)? ***Si responde afirmativamente: ¿Puedo verla por favor?***	SÍ ..... No	1 2→**6.19**
6.17	***Copie las fechas del carné de vacunación para la Vitamina A, la primera y la tercera dosis de la vacuna PENTAVALENTE (DPT1- DPT3) y Sarampión (SRP).*** ***Si las vacunas no están registradas en el carné, llene 99 / 99 / 9999***	***VITAMINA A:*** ***DIA MES AÑO*** ☐☐ ☐☐ ☐☐☐☐ ***PENTAVALENTE (DPT 1ra. DOSIS)*** ***DIA MES AÑO*** ☐☐ ☐☐ ☐☐☐☐ ***PENTAVALENTE (DPT 3ra. DOSIS)*** ***DIA MES AÑO*** ☐☐ ☐☐ ☐☐☐☐ ***SARAMPION (SRP)*** ***DIA MES AÑO*** ☐☐ ☐☐ ☐☐☐☐	
6.18	¿(NOMBRE) recibió alguna vacuna que no esté registrada en este carné, incluyendo vacunas recibidas durante campañas de vacunación?	SÍ ..... No ..... No sabe	1→**6.22** 2→**6.22** 9→**6.22**
6.19	***Si la madre no tiene el carné.*** Pregunte: ¿(NOMBRE) recibió la vacuna Pentavalente DPT (Difteria, Tosferina, Tétanos) es decir, una inyección en el muslo, que a veces se da al mismo tiempo que las gotitas contra la polio?	SÍ ..... No ..... No sabe	1 2→**6.21** 9→**6.21**
6.20	Cuántas veces?	NUMERO DE VECES..... ☐	
6.21	¿(NOMBRE) alguna vez recibió una inyección en el brazo para prevenir el sarampión?	SÍ ..... No ..... No sabe	1 2 9

Control de la diarrea			
6.22	¿Ha tenido (NOMBRE) diarrea en los últimos 15 días, incluido este día?	SÍ …….. No ……	1 2→**6.24**
6.23	¿Le fue dado algo de lo siguiente para beber en algún momento desde que empezó a tener diarrea: **Lea las opciones en voz alta**	**SÍ NO NS**	
	a) Líquido hecho de un sobre especial llamado suero oral?	1 2 9	
	b) Líquido que viene ya empacado con suero oral?	1 2 9	
	c) Un suero casero recomendado por el gobierno?	1 2 9	
Infecciones Respiratorias Agudas / Neumonía			
6.24	¿Ha tenido (NOMBRE) tos que viene del pecho en algún momento durante los últimos 15 días?	SÍ …….. No ……	1 2→**6.28**
6.25	¿Cuando (NOMBRE) tuvo tos, tuvo también dificultad para respirar o respiraba más rápido de lo normal, con respiraciones cortas y agitadas?	SÍ …….. No ……	1 2
6.26	¿Buscó consejo o atención para la tos / respiración agitada?	SÍ …….. No ……	1 2→**6.28**
6.27	¿Quién le proporcionó consejo o atención? ¿Alguna otra persona? ***(Registre todas las respuestas que mencione.)***	Doctor……..…….. Enfermera…….….. Auxiliar de enfermería…….. Promotor comunitario capacitado…… Otro, cuál? _____ ……	1 2 3 4 8
Agua y salubridad			
6.28	¿Le dan algún tratamiento al agua para que sea segura para tomar?	Sí …… No ……	1 2→**6.30**
6.29	¿Qué es lo que usualmente hacen con el agua para que sea segura para tomar? ***Señale más de una respuesta sólo si se usan varios métodos conjuntamente de forma regular, por ejemplo, filtración con tela y cloro.***	Dejar que repose y se asiente/sedimentación….. Cernirla a través de una tela…….. Hervirla…….. Añadir blanqueador / cloro……. Filtro de agua (cerámica, arena, compuesto)……. Desinfección solar (SODIS)……. Otro, cuál? _____ .. No sabe……	1 2 3 4 5 8 9
6.30	***PIDA VER Y OBSERVAR*** *¿Puede mostrarme dónde normalmente se lava las manos y qué usa para lavárselas?*	Dentro / cerca de un baño.. …… Dentro/cerca de la cocina/lugar para cocinar..... En otro lugar fuera de la casa..... Ningún lugar específico..... No se otorga permiso para observar	1 2 3 4 6→**FIN**
6.31	***Únicamente observe: ¿Existe jabón o detergente, o algún agente de limpieza que se usa a nivel local?*** El objeto deberá estar en el lugar o ser traído por la encuestada en el lapso de un minuto. Si el objeto no está presente en el lapso de un minuto seleccione "nada", incluso si es traído posteriormente.	Jabón…… Detergente…… Ceniza …… Lodo/arena …… Nada…… Otro, cuál? _____	1 2 3 4 5 8

¡MUCHAS GRACIAS POR SU VALIOSA COLABORACIÓN!

Nombre del Entrevistador: _____

Nombre y firma del Supervisor después de verificar que la encuesta se completó:

_____

Annex D: Sampling Frame

Cantón	Parroquia	Zona	Sector	Estrato	Muestra	Equipo
Pujilí	Zumbahua	999	44	33	12	A y B
		999	7	34	10	
	Pilaló	1	1	32	7	
	Angamarca	999	3	30	11	A
	Guangaje	999	12	31	10	B
Sigchos	Chugchilán	999	13	47	12	A y B
		999	16	48	14	
	Isinliví	999	12	49	5	
Saquisilí	Saquisilí	2	9	44	7	A y B
	Canchagua	1	1	45	9	
	Cochapamba	999	2	46	7	
Salcedo	Salcedo	999	82	35	4	A y B
		999	17	36	6	
		999	18	37	9	
		3	3	38	9	
Pujilí	Pujilí	999	62	26	9	A y B
		999	11	28	6	
		2	4	29	16	
Salcedo	Pansaleo	1	1	43	6	A y B
	Mulliquindil	1	4	42	6	
	Cusubamba	999	21	39	12	
		999	18	40	6	
Salcedo	Mulalillo	999	15	41	8	B
Pujilí	Pujilí	999	31	27	6	
Pangua	El Corazón	999	21	23	7	A
	Moraspungo	999	10	24	6	
		999	32	25	8	
Latacunga	Pastocalle	999	20	18	7	B
		999	19	19	9	
	Belisario Quevedo	999	21	13	6	A y B
	Poaló	999	9	17	7	
	Guaytacama	999	7	14	8	
		924	1	15	11	
	Tanicuchí	999	14	20	7	
	Toacaso	999	5	21	11	
		1	1	22	7	
	Mulaló	999	4	16	7	
Latacunga	Latacunga	1	3	2	7	A y B
		1	4	3	6	
		14	1	4	10	
		14	4	5	7	
		14	3	6	8	
		5	5	7	7	
		12	2	8	11	
		7	2	9	6	
		7	7	10	7	
		18	8	11	7	
		2	2	12	7	
		999	6	1	9	
Totales					**400**	

Annex E: KPC Survey Training Agenda

AGENDA FOR THE DATA COLLECTOR TRAINING WORKSHOP

VENUE: CEPAR Training Classroom

DATES: July 01–02, 2013

OBJECTIVES:

a. To train interviewers and supervisors on administering household surveys to gather information on the quality of maternal and neonatal care.

b. To conduct practice sessions for survey questionnaire administration and "out of classroom" survey administration amid real households

c. To make plans for data collection along with their respective teams.

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PARTICIPANTS:

Consultant team:
José Ordóñez, Luis Revelo and Rommel Andrade

Interviewees & supervisors:

Edgar Lima supervisor
Patricia Velasteguí
Tania Guaigua
María Montenegro
Bethy Brito
Jorge Macas supervisor
Amparo Alvear
Miriam Espinoza
Paulina Morales
Mario Pérez

1. AGENDA

DAY ONE		
TIME	**ACTIVITY**	**INSTRUCTOR/ FACILITATOR**
09H00 - 09H15	Welcome and workshop objectives	• CHS – CEPAR representatives
09H15 - 09H30	Project general framework: background, objectives, interventions	• CHS
09H30 - 10H00	Survey objectives; research unit; geographic scope and topics;	• José Ordóñez

	sample; questionnaire and survey techniques.	
ADMINISTRATION OF HOUSEHOLD QUESTIONNAIRE		
10H00 – 10H45	• Questionnaire structure and research modules • Informed Consent, indicators, referral periods • **Section I:** Sample and survey locations • **Section II:** Demographic and social characteristics	• José Ordóñez • Luis Revelo
10H45 - 11H00	**BREAK**	
11H00 – 13H00	• **Section III**: Pregnancy care and health practices • **Section IV**: Labor and delivery care	• José Ordóñez • Luis Revelo
13H00 - 14H00	**BREAK**	
14H00 - 15H45	**Section V:** Post-partum and newborn care **Section VI**: Family Planning, breastfeeding and child nutrition	• José Ordóñez • Luis Revelo
15H45 - 16H00	**BREAK**	
16H00 -17H15	• Continuation of Section VI • Classroom practice session • Out of classroom assignment	• José Ordóñez • Luis Revelo • Romel Andrade
DAY TWO		
ASSINGMENT, ADMINISTRATIVE ASPECTS AND DISTRIBUTION OFSURVEY MATERIALS		
09H00 -10H00	• Out of classroom assignment and evaluation	• Luis Revelo • Romel Andrade
10H00 – 10H15	• Administrative aspects	• José Ordóñez
10H15 – 11H00	• Creation of field teams • Sample distribution and assignment of workloads • Distribution of materials	• Luis Revelo • Romel Andrade
11H00 -11H15	**BREAK**	
11H15 -12H00	• Interviewers ID • Cash advances	• Alberto Lima

Annex F: Computer Tables for Each Question

Variable	Response Category	Cases	%
Geographic location			
1.2 Canton:	LATACUNGA	179	43,4
	LA MANÁ	0	0
	PANGUA	21	5,1
	PUJILÍ	88	21,4
	SALCEDO	66	16,0
	SAQUISILÍ	23	5,6
	SIGCHOS	35	8,5
	Total	**412**	**100,0**
1.3 City or parish:	LATACUNGA		
	ALÁQUES (ALÁQUEZ)		
	BELISARIO QUEVEDO (GUANAILIN)		
	GUAITACAMA (GUAYTACAMA)		
	MULALÓ		
	POALÓ		
	SAN JUAN DE PASTOCALLE		
	TANICUCHÍ		
	TOACASO		
	LA MANÁ		
	GUASAGANDA (CAB. EN GUASAGANDA)		
	EL CORAZÓN		
	MORASPUNGO		
	PUJILÍ		
	ANGAMARCA		
	GUANGAJE		
	LA VICTORIA		
	PILALÓ		
	TINGO		
	ZUMBAHUA		
	SAN MIGUEL		
	CUSUBAMBA		
	MULALILLO		
	MULLIQUINDIL (SANTA ANA)		
	SAQUISILÍ		
	CANCHAGUA		
	COCHAPAMBA		
	SIGCHOS		
	CHUGCHILLÁN		
	ISINLIVÍ		
	Total		
Socio-demographic characteristics of the mother and child(ren) under 24 months of age			

2.1 Mother's age:	< 15 years	0	0
	15-19 years	59	14,3
	20-24 years	130	31,6
	25-29 years	84	20,4
	30-39 years	115	27,9
	40 or more years	24	5,8
	Total	**412**	**100,0**
2.2 What is the highest level of education you have attained?	No school	30	7,3
	Incomplete Primary School	52	12,6
	Completed Primary School	142	34,5
	Incomplete Secondary School	94	22,8
	Completed Secondary School	62	15,0
	Technical training	2	0,5
	University studies	30	7,3
	Total	**412**	**100,0**
2.3 How do you identity yourself?	Black	0	0
	Mulatta	5	1,2
	White	1	0,2
	Mestizo	237	57,5
	Indigenous	168	40,8
	Other	1	0,2
	Total	**412**	**100,0**
2.4 What is your main activity?	Housewife	123	29,9
	Peasant worker	163	39,6
	Housekeeper	3	0,7
	Public sector employee or worker	17	4,1
	Trader	27	6,6
	Industry worker	17	4,1
	Private employee	41	10,0
	Student	21	5,1
	Other	0	0
	No response	0	0
	Total	**412**	**100,0**
2.5 What is your current marital status?	Single	65	15,8
	Married	251	60,9
	Separated	4	1,0
	Widow	2	0,5
	Common-law marriage	90	21,8
	No response	0	0
	Total	**412**	**100,0**
2.6 During your life, how many children have you had who were born alive?	1	143	34,7
	2	100	24,3
	3	64	15,5
	4	33	8,0
	5	24	5,8
	6	14	3,4
	7	11	2,7
	8	10	2,4

	9	5	1,2
	10	3	0,7
	11	1	0,2
	12	3	0,7
	14	1	0,2
	Total	**412**	**100,0**
2.7 How many living children do you currently have, even if they do not live with you?	1	148	35,9
	2	99	24,0
	3	68	16,5
	4	30	7,3
	5	27	6,6
	6	14	3,4
	7	11	2,7
	8	9	2,2
	9	3	0,7
	10	1	0,2
	11	1	0,2
	No response	1	0,2
	Total	**412**	**100,0**
2.9 Sex of the child:	Male	220	53,4
	Female	192	46,6
	Total	**412**	**100,0**
Age of child (in months)	< 1 month	4	1,0
	1 to 4 months	59	14,3
	5 to 9 months	77	18,7
	10 to 14 months	95	23,1
	15 to 19 months	93	22,6
	20 to 23 months	84	20,4
	Total	**412**	**100,0**
Care practices during pregnancy			
3.1 Did you have any antenatal checkups when you were pregnant with [NAME]?	Yes	393	95,4
	No	19	4,6
	Total	**412**	**100,0**
3.2 How many months pregnant were you when you had your first antenatal checkup?	< 2 months	72	17,5
	2-3 months	195	47,3
	4-5 months	82	19,9
	6-7 months	35	8,5
	8-9 months	9	2,2
	Not applicable	19	4,6
	Total	**412**	**100,0**
3.3 Where did you receive an antenatal checkup?	At home (her home)	9	2,2
	In the community	1	0,2
	In a health center	391	94,9
	Not applicable	19	4,6
	Total	**420**	**100,0**
3.4 From whom did you receive antenatal care at home?	Community health worker (CHW)	0	0,0
	Traditional birth attendant (TBA)	8	1,9
	Skilled health worker (doctor, nurse,	3	0,7

	skilled birth attendant)		
	Other	0	0,0
	Not applicable	403	97,8
	Total	**414**	**100,0**
Antenatal service utilization at home or in the community			
3.5 How many times did you receive antenatal services at home during your last pregnancy?	2	2	0,5
	3	4	1,0
	4	2	0,5
	6	1	0,2
	7	0	0,0
	Not applicable	403	97,8
	Total	**412**	**100,0**
3.4 From whom did you receive antenatal care in the community?	Community health worker (CHW)	0	0,0
	Traditional birth attendant (TBA)	0	0,0
	Skilled health worker (doctor, nurse, skilled birth attendant)	1	0,2
	Other	0	0,0
	Not applicable	411	99,8
	Total	**412**	**100,0**
3.7 How many times did you receive antenatal care in the community during your last pregnancy?	1	0	0,0
	2	0	0,0
	3	1	0,2
	4	0	0,0
	7	0	0,0
	8	0	0,0
	Not applicable	411	99,8
	Total	**412**	**100,0**
37a. Did the woman have at least 4 antenatal visits in her home and/or community?	Yes	1	0,2
	No	9	2,2
	Not applicable	402	97,6
	Total	**412**	**100,0**
Antenatal service content at home or in the community			
3.8 At home or in the community, did you receive counseling about how to prepare for birth?	Yes	3	0,7
	No	5	1,2
	Not applicable	404	98,1
	Total	**412**	**100,0**
3.9 At home or in the community, did you receive counseling on danger signs that may indicate a pregnant woman is sick and needs to see a health care worker?	Yes	3	0,7
	No	5	1,2
	Not applicable	404	98,1
	Total	**412**	**100,0**
3.10 What other services/care did you receive?	Received folic acid	0	0,0
	Received iron	0	0,0
	Received the tetanus vaccine	1	0,2
	Received advice on eating more	1	0,2
	Physical examination to detect maternal complications	0	0,0
	Received counseling on danger signs	1	0,2

	Received counseling about preparation for birth	2	0,5
	Received counseling on newborn care	0	0,0
	Received information about family planning	0	0,0
	Other	0	0,0
	Does not know/does not recall	5	1,2
	Not applicable	404	98,1
	Total	**414**	**100,0**
3.11 Did he/she tell you that you had problems related to your pregnancy and that it was necessary to go to the health center?	Yes	0	0,0
	No	8	1,9
	Not applicable	404	98,1
	Total	**412**	**100,0**
3.12 If yes, did they suggest that you go to a health center?	Yes	0	0,0
	Does not know/does not recall	0	0,0
	Not applicable	412	100,0
	Total	**412**	**100,0**
3.13 If yes, were you able to go to a health center within the recommended timeframe?	Yes	0	0,0
	No	0	0,0
	Not applicable	412	100,0
	Total	**412**	**100,0**
3.14 Who was the principal person who made the decision to go to a health center?	The patient herself	0	0,0
	Spouse/partner/companion	0	0,0
	Head of household	0	0,0
	Not applicable	412	100,0
	Total	**412**	**100,0**
Antenatal care in health facilities			
3.15 Do you know if there are any health centers that provide care for pregnant women, mothers and newborns in this parish or canton?	Yes	354	85,9
	No	38	9,2
	Does not know/does not recall	1	0,2
	Not applicable	19	4,6
	Total	**412**	**100,0**
3.16 To which of these health facilities do you go most frequently?	MOH hospital / maternity unit	78	18,9
	MOH health center/sub-center	269	65,3
	EISS hospital/clinic	12	2,9
	Police or Armed Forces Hospital / Clinic	1	0,2
	Private Clinic/Doctor	29	7,0
	Other	2	0,4
	Not applicable	19	4,6
	Does not know/does not respond	2	0,5
	Missing	21	5,1
	Total	**412**	**100,0**
3.17 Who provided the most antenatal checkups when you were pregnant with [NAME]?	Doctor	207	50,2
	Skilled birth attendant	129	31,3
	Nurse	54	13,1
	Auxiliary nurse	1	0,2
	Does not know/does not recall	2	0,5

	Not applicable	19	4,6
	Total	**412**	**100,0**
3.18 How many pregnancy checkups did you have in a health facility?	<2 checkups	19	4,6
	2-3 checkups	78	18,9
	4-5 checkups	92	22,3
	6-7 checkups	105	25,5
	8-9 checkups	82	19,9
	10 or more checkups	15	3,6
	Not applicable	21	5,1
	Total	**412**	**100,0**
3.19 Have you received any kind of counseling on how to take care of yourself during pregnancy, or how to recognize danger signs?	Yes	272	66,0
	No	115	27,9
	Does not know/does not recall	4	1,0
	Not applicable	21	5,1
	Total	**412**	**100,0**
3.20 Did you receive counseling on how to prepare for the delivery and birth of [NAME]?	Yes	246	59,7
	No	140	34,0
	Does not know/does not recall	5	1,2
	Not applicable	21	5,1
	Total	**412**	**100,0**
Did the woman have at least 4 antenatal visits to the health facility during her last pregnancy?	Yes	294	71,4
	No	97	23,5
	Not applicable	21	5,1
	Total	**412**	**100,0**
Did the woman have at least 4 combined antenatal visits between the community and the health facilities?	Yes	302	73,3
	No	98	23,8
	Not applicable	20	4,9
	Total	**412**	**100,0**
Tetanus immunization during pregnancy			
3.21 Did you receive an injection in your arm to prevent your baby from contracting tetanus?	Yes	338	82,0
	No	69	16,7
	Does not know/does not recall	5	1,2
	Total	**412**	**100,0**
3.22 How many times did you receive this injection?	1	160	38,8
	2	149	36,2
	3	23	5,6
	4	1	0,2
	Does not know/does not recall	5	1,2
	Not applicable	74	18,0
	Total	**412**	**100,0**
3.23 Did you receive a tetanus toxoid injection at any time before your pregnancy with [NAME]?	Yes	120	29,1
	No	274	66,5
	Does not know/does not recall	18	4,4
	Total	**412**	**100,0**
3.24 Before your pregnancy with [NAME], how many times did you receive a tetanus injection?	0	0	0,0
	1	67	16,3
	2	36	8,7
	3	5	1,2

	4	2	0,5
	Does not know/does not recall	10	2,4
	Not applicable	292	70,9
	Total	**412**	**100,0**
Did the woman receive at least 2 tetanus toxoid injections before the birth of youngest child?	Yes	223	54,1
	No	133	32,3
	Not applicable	56	13,6
	Total	**412**	**100,0**
Birth preparation			
3.25 What sort of preparations did you and your family do before the birth of [NAME]?	Identified the facility where the woman should go to give birth	151	36,7
	Identified a skilled provider or a TBA to assist with the birth	34	8,3
	Identified a place where she could go in case of an emergency	17	4,1
	Put money aside	139	33,7
	Prepared a suitcase for the delivery	344	83,5
	Identified a means of transportation	27	6,6
	Identified a blood donor	1	0,2
	Planned for support from family members	64	15,5
	Prepared documents	51	12,4
	No preparations were made	32	7,8
	Other	17	4,1
	Total	**412**	**100,0**
Did the woman implement at least 2 steps of birth preparedness?	Yes	299	72,6
	No	113	27,4
	Total	412	100,0
3.26 What should a woman and her family do to properly prepare themselves for the birth?	Identify the health facility she will give birth	177	43,0
	Identify a skilled provider or a TBA to attend the delivery	50	12,1
	Identify a place to go in case of an emergency	24	5,8
	Put money aside	181	43,9
	Prepare a suitcase for the delivery	333	80,8
	Identify a means of transportation	42	10,2
	Identify a blood donor	0	0,0
	Plan for support from family members	110	26,7
	Prepare documents	67	16,3
	No preparations should be made	12	2,9
	Other	15	3,6
	Total	**412**	**100,0**
Does the woman know at least 2 steps of birth preparedness?	Yes	332	80,6
	No	80	19,4
	Total	**412**	**100,0**
Danger signs for pregnant women			
3.27 What difficulties would she consider as danger signs for the mother or her	Severe abdominal pain	180	43,7
	Difficulty breathing	13	3,2

child?	Vaginal bleeding	199	48,3
	Temperature or fever	47	11,4
	Water breaks	21	5,1
	Swollen feet, hands, or face	114	27,7
	Lack of fetal/baby movement	19	4,6
	Fainting, loss of consciousness	46	11,2
	Headache/blurred vision	114	27,7
	Seizures	4	1,0
	Smelly vaginal discharge	24	5,8
	Other	30	7,3
	Does not know/does not respond	45	10,9
	Total	**412**	**100,0**
The woman knows at least 2 danger signs for a pregnant woman?	Yes	286	69,4
	No	126	30,6
	Total	**412**	**100,0**
3.28 If you become pregnant again and have any problem during your pregnancy, would you seek out some form of care?	Yes	399	96,8
	No	12	2,9
	Does not know/does not respond	1	0,2
	Total	**412**	**100,0**
3.29 Where is the main place you would go to?	MOH hospital / maternity unit	96	23,3
	MOH health center/sub-center	264	64,1
	EISS hospital/clinic	12	2,9
	Peasant social security	3	0,7
	Private Clinic/Doctor	3	0,7
	TBA	20	4,9
	Other	3	0,7
	Not applicable	13	3,2
	Total	**412**	**100,0**
Danger signs during birth			
4.1 What issues/symptoms do you think indicate danger for the mother or child and serve as an alert to seek immediate care from a skilled provider?	The baby is incorrectly positioned	88	21,4
	Absent or minimal fetal movement	66	16,0
	Prolonged labor	41	10,0
	Fever.	120	29,1
	Headache/blurred vision	132	32,0
	Seizures	5	1,2
	Difficulty breathing	47	11,4
	Retained placenta	20	4,9
	Loss of consciousness/fainting	42	10,2
	Hemorrhage	132	32,0
	Other	22	5,3
	Does not know/does not respond	55	13,3
	Total	**412**	**100,0**
The woman knows at least 2 danger signs that occur during delivery?	Yes	364	88,3
	No	48	11,7
	Total	412	100,0
Delivery assistance, location, and immediate post-partum practices			
4.2 Where did you give birth to [NAME]?	MOH hospital / maternity unit	202	49,0
	MOH health center/sub-center	27	6,6

	EISS hospital/clinic	29	7,0
	Peasant social security	1	0,2
	Police or armed forces hospital/clinic	1	0,2
	Private Clinic/Doctor	25	6,1
	At home with TBA	71	17,2
	At home with relative	47	11,4
	At home, unaccompanied	5	1,2
	Other	4	1,0
	Total	**412**	**100,0**
4.3 Who attended the delivery of [NAME]?	Doctor	207	50,2
	Skilled birth attendant	57	13,8
	Nurse	23	5,6
	TBA	71	17,2
	Relative	47	11,4
	Gave birth alone	5	1,2
	Other	2	0,5
	Total	**412**	**100,0**
Was the woman's last birth was attended by a skilled provider?	Yes	287	69,7
	No	125	30,3
	Total	412	100,0
4.4 Would she recommend to a friend or relative giving birth at the facility where you delivered [NAME]?	Yes	278	67,5
	No	6	1,5
	Does not know	1	0,2
	Not applicable	127	30,8
	Total	**412**	**100,0**
4.6 Which is the main reason you did not deliver [NAME] in a health facility?	Geographical barriers	31	7,5
	Did not have time to get there	38	9,2
	Did not have money to pay	1	0,2
	Facility health care is deficient	3	0,7
	Home delivery is customary/traditional	1	0,2
	Other	46	11,2
	Does not know/does not recall Not applicable	285	69,2
	Total	**412**	**100,0**
4.6 Was anything placed on the umbilical cord either before or after it was cut?	Yes	89	21,6
	No	33	8,0
	Does not know/does not recall	5	1,2
	Not applicable	285	69,2
	Total	**412**	**100,0**
4.7 What was the primary thing that was placed on the cord?	Traditional remedies	31	7,5
	Antiseptic	43	10,4
	Other	13	3,2
	Does not know/does not respond	2	0,5
	Not applicable	323	78,4
	Total	**412**	**100,0**
4.8 Was it dried immediately after birth, before the placenta was delivered?	Yes	113	27,4
	No	11	2,7

	Does not know/does not recall	3	0,7
	Not applicable	285	69,2
	Total	**412**	**100,0**
4.9 Was it wrapped in a cloth or towel?	Yes	118	28,6
	No	7	1,7
	Does not know/does not recall	2	0,5
	Not applicable	285	69,2
	Total	**412**	**100,0**
4.10a How long after birth did breastfeed [NAME] for the first time?	As soon as he/she was born	214	51,9
	Immediately	1	0,2
	Other	2	0,5
	Does not recall	195	47,3
	Total	**412**	**100,0**
How many hours after delivery did you start breastfeeding?	<1 hour	72	17,5
	1-2 hours	56	13,6
	3-4 hours	30	7,3
	5-9 hours	29	7,0
	10-14 hours	10	2,4
	15-19 hours	1	0,2
	20 or more hours	0	0,0
	Not applicable	214	51,9
	Total	**412**	**100,0**
How many days after delivery did you start breastfeeding?	No days	129	31,3
	1 day	28	6,8
	2 days	25	6,1
	3 days or more	16	3,9
	Not applicable	214	51,9
	Total	**412**	**100,0**
Did the baby nurse within one hour of birth?	Yes	230	55,8
	No	182	44,2
	Total	**412**	**100,0**
Was essential newborn care provided? (dried/warm; cord care; BF within one hour)	Yes	45	10,9
	No	367	89,1
	Total	**412**	**100,0**
4.11 Did any serious problems occur during labor that made it necessary to seek out immediate care? The woman gave birth at home.	Yes	12	2,9
	No	114	27,7
	Does not know/does not respond	1	0,2
	Not applicable	285	69,2
	Total	**412**	**100,0**
4.12 If yes, what serious problem did you have?	Skin conditions	1	0,2
	Placental retention	3	0,7
	Severe abdominal pain	6	1,5
	Does not know/does not respond	1	0,2
	Not applicable	400	97,1
	Total	**412**	**100,0**
4.13 Were you told that there was a problem related to the delivery that made it necessary for you to visit a health	Yes	7	1,7
	No	5	1,2
	Not applicable	400	97,1

facility?	**Total**	**412**	**100,0**
4.14 During your home birth, were you told to go to a health center because of a problem related to the delivery?	Yes	8	1,9
	No	4	1,0
	Not applicable	400	97,1
	Total	**412**	**100,0**
Referral to health facility during the delivery	Yes	8	1,9
	No	6	1,5
	Not applicable	398	96,6
	Total	**412**	**100,0**
4.15 Were you at a health facility to receive care for this problem?	Yes	7	1,7
	No	5	1,2
	Not applicable	400	97,1
	Total	**412**	**100,0**
Follow-through with referral	Yes	7	1,7
	No	7	1,7
	Not applicable	398	96,6
	Total	**412**	**100,0**
4.16 If yes, tell me which things helped you to reach the health facility?	Received immediate access to transportation	4	1,0
	Assistance from spouse or other family member	4	1,0
	Communication method with health facility	7	1,7
	Availability of a selected community "leader" who facilitated the evacuation	7	1,7
	Availability of a "community health worker" who facilitated the evacuation	7	1,7
	Immediate access to means of payment	7	1,7
	Immediate access to a skilled provider	7	1,7
	Accompanied by a community health worker	1	0,2
	Other	7	1,7
	Does not know/does not respond	7	1,7
	Not applicable	405	98,3
Total responses		**412**	**100,0**
4.17 In the end, were you able to reach the health facility?	Yes	7	1,7
	Not applicable	405	98,3
	Total	**412**	**100,0**
4.18 Who made the decision to allow you (or not allow you) to go to the health facility?	The patient herself	3	0,7
	Spouse/companion	4	1,0
	Other	0	0,0
	Not applicable	405	98,3
	Total	**412**	**100,0**
4.19 If you become pregnant again and have any problem during your pregnancy, would you seek out some form of care?	Yes	396	96,1
	No	14	3,4
	Does not know/does not respond	2	0,5
	Total	**412**	**100,0**
4.20 Where is the main place you would go to?	MOH hospital / maternity unit	105	25,5
	MOH health center/sub-center	246	59,7

	EISS Hospital/Clinic	17	4,1
	Peasant social security	1	0,2
	Police or Armed Forces Hospital/Clinic	2	0,5
	Private Clinic/Doctor	20	4,9
	TBA	4	1,0
	Other	1	0,2
	Not applicable	16	3,9
	Total	**412**	**100,0**
Use of postnatal care services			
5.1 After giving birth in the facility center, did you stay there for at least 2 days?	Yes	241	58,5
	No	44	10,7
	Not applicable	127	30,8
	Total	**412**	**100,0**
5.2 Did you receive post-partum care or counseling from a health provider within two days of delivery?	Yes	228	55,3
	No	184	44,7
	Total	**412**	**100,0**
5.3 Did you receive postpartum care or counseling in the first week in your home, community, or the health facility?	Yes	30	7,3
	No	154	37,4
	Not applicable	228	55,3
	Total	**412**	**100,0**
5.4 If yes, where did you receive postpartum care/counseling?	Home visit by a TBA	17	4,1
	Home visit by a CHW	2	0,5
	Home visit by a skilled health provider	30	7,3
	Health center/hospital	198	48,1
	Private health clinic	17	4,1
	Not applicable	258	62,6
	Total	**522**	**100,0**
Received postpartum care within 2 days of delivery	Yes	228	55,3
	No	30	7,3
	Not applicable	154	37,4
	Total	**412**	**100,0**
Content/quality of postpartum home visits			
5.5 During the postpartum home visit, did you receive counseling on the following topics:	What you should do to care for the baby	33	5,9
	Breastfeeding and nutrition for the baby	34	6,1
	Care and danger signs in the newborn	28	5,0
	Care and danger signs in the new mother	22	3,9
	Family planning	24	4,3
	Postpartum visits to the health center	24	4,3
	The importance of eating more and better	26	4,6
	Not applicable	369	65,9
Total responses		**560**	**100,0**
5.6 What other services/counseling for your newborn did you receive during your postpartum home visits?	Birth registration	5	1,2
	Newborn physical exam	11	2,6
	Newborn immunization	21	4,9
	Other	3	0,7
	Does not know/does not respond	16	3,8
	Not applicable	369	86,8
Total responses		**425**	**100,0**

5.7 What other services/counseling did you yourself receive during your postnatal home visits?	Physical examination to detect maternal complications	10	2,0
	Vitamin A distribution	35	7,0
	Family planning	28	5,6
	Other	43	8,6
	Does not know/does not respond	17	3,4
	Not applicable	369	73,5
Total responses		**502**	**100,0**
Danger signs for the newly-postpartum woman and newborn			
5.8 What symptoms would make you think that a newborn is sick and should receive immediate care in a health facility?	Newborn does not cry immediately after birth	84	9,5
	Difficulty breathing, rapid respiration	122	13,8
	Newborn is cold	44	5,0
	Fever.	264	30,0
	Inability or refusal to breastfeed/latch on	152	17,3
	Lethargy/lack of activity	32	3,6
	Seizures	10	1,1
	Pustules or sores on the skin	16	1,8
	Pus or inflammation of umbilical cord	17	1,9
	Other	122	13,8
	Does not know/does not respond	18	2,0
Total responses		**881**	**100,0**
5.9 What symptoms would make you think that a newly-postpartum woman is sick and should receive immediate care in a health facility?	Fever	173	19,8
	Difficulty breathing	27	3,1
	Smelly vaginal discharge	33	3,8
	Hemorrhage	160	18,3
	Headache/blurred vision	176	20,2
	Severe pain in the lower abdomen (uterus)	169	19,4
	Fainting/seizures	34	3,9
	Calf pain	27	3,1
	Other	35	4,0
	Does not know/does not respond	39	4,5
Total responses		**873**	**100,0**
The woman knows at least 2 danger signs for the newborn?	Yes	399	96,8
	No	13	3,2
	Total	**412**	**100,0**
The woman knows at least 2 danger signs for a newly-postpartum woman?	Yes	384	93,2
	No	28	6,8
	Total	**412**	**100,0**
Handling postpartum emergencies			
5.10 Did any serious postpartum problems occur at home that made it necessary to seek out immediate care?	Yes	48	11,7
	No	364	88,3
	Total	**412**	**100,0**
5.11 If yes, which serious problem (emergency situation) did you experience?	HEMORRHAGE	4	1,0
	FEVER/CHILLS	2	0,5
	POST-CAESARIAN INFECTION	2	0,5
	BODILY SHIVERING, NAUSEA, AND	2	0,5

	SWEATING		
	"SOBREPARTO" (TRADITIONAL POSTPARTUM ILLNESS WITH FEVER AND SHAKING)	3	0,7
	NEWBORN NOT NURSING	1	0,2
	LOWER ADBOMINAL PAIN PROBLEMS	10	2,4
	PLACENTA RETENIDA	3	0,7
	SWELLING OF THE VAGINAL CANAL	1	0,2
	NOT ABLE TO EAT	1	0,2
	LOW BLOOD-SUGAR	1	0,2
	THE CHILD'S NOSE IS CLOGGED, CAN NOT BREATH AND REMAINS UNCONSCIOUS	1	0,2
	WASTE IN THE ABDOMEN	2	0,5
	HEADACHE	10	2,4
	INFECTED LACERATION	2	0,5
	BLADDER OPERATION	1	0,2
	ANEMIA	3	0,7
	Not applicable	364	88,3
	Total	**412**	**100,0**
5.12 Did you immediately go to a health facility?	Yes	34	8,3
	No	14	3,4
	Not applicable	364	88,3
	Total	**412**	**100,0**
5.13 Were you told that there was a postpartum problem that made it necessary for you to visit a health facility? Received a home visit.	Yes	6	1,5
	No	10	2,4
	Not applicable	396	96,1
	Total	**412**	**100,0**
5.14 Were you sent to the health facility because of a postpartum problem?	Yes	5	1,2
	No	1	0,2
	Not applicable	406	98,5
	Total	**412**	**100,0**
Referred to health facility during postpartum period	Yes	5	1,2
	No	1	0,2
	Not applicable	406	98,5
	Total	**412**	**100,0**
5.15 If yes, were you able to go to a health facility within the recommended timeframe?	Yes	4	1,0
	No	1	0,2
	Not applicable	407	98,8
	Total	**412**	**100,0**
Follow-through with referral	Yes	4	1,0
	No	1	0,2
	Not applicable	407	98,8
	Total	**412**	**100,0**
5.16 Who made the decision to allow you (or not allow you) to go to the health facility?	The patient herself	1	0,2
	Spouse/partner/companion	3	0,7
	Other	1	0,2
	Not applicable	407	98,8

	Total	**412**	**100,0**
5.17 If you become pregnant again and have a postpartum problem, will you seek out some form of care?	Yes	402	97,6
	No	7	1,7
	Does not know/does not respond	3	0,7
	Total	**412**	**100,0**
5.18 Where is the main place you would go to?	MOH hospital / maternity unit	101	24,5
	MOH health center/sub-center	261	63,3
	Peasant social security	14	3,4
	Police or Armed Forces Hospital/Clinic	1	0,2
	Private Clinic/Doctor	1	0,2
	TBA	19	4,6
	Other	1	0,2
	Not applicable	10	2,4
	Total	**412**	**100,0**
Newborn care			
5.19 In your opinion, what is the minimum time period after birth during which a woman and her baby should receive postnatal care?	1 or 2 days	67	16,3
	3-6 days	61	14,8
	1 or 2 weeks	102	24,8
	3-6 weeks	155	37,6
	More than 6 weeks	7	1,7
	Does not know/does not respond	20	4,9
	Total	**412**	**100,0**
5.20 If you became pregnant again, and your newborn experiences a problem, will you seek some form of care?	Yes	407	98,8
	No	5	1,2
	Total	**412**	**100,0**
5.21 Where is the main place you would go to?	MOH hospital / maternity unit	95	23,1
	MOH health center/sub-center	274	66,5
	EISS hospital/clinic	13	3,2
	Peasant social security	1	0,2
	Police or Armed Forces Hospital/Clinic	1	0,2
	Private Clinic/Doctor	23	5,6
	Not applicable	5	1,2
	Total	**412**	**100,0**
5.22 What substances did you use on the baby's umbilical cord after birth?	Traditional remedies	51	12,4
	Antiseptic	245	59,5
	Other	59	14,3
	Does not know/does not recall	57	13,8
	Total	**412**	**100,0**
5.23 In your opinion, what should a new mother do to properly care for her baby after birth?	Dry the newborn immediately after birth	94	9,9
	Establish skin-to-skin contact with the mother	65	6,8
	Delay the baby's first bath for at least 6 hours	44	4,6
	Cover the baby's head with a cap or cloth to keep him or her warm	244	25,6
	Initiate breastfeeding within the first hour of birth	132	13,9
	Exclusive breastfeeding	235	24,7

	Do not put anything on the umbilical cord	18	1,9
	Washing hands	54	5,7
	Other	56	5,9
	Does not know/does not respond	10	1,1
Total responses		**953**	**100,0**
Can the mother identify at least 2 steps of newborn care?	Yes	398	96,6
	No	14	3,4
	Total	**412**	**100,0**
Breastfeeding/feeding infants and small children			
5.24 At what point after the birth of [NAME] did you initiate breastfeeding?	Within the first hour	228	55,3
	2-6 hours after birth	87	21,1
	More than 6 hours after birth	94	22,8
	Never	1	0,2
	Does not know/does not respond	2	0,5
	Total	**412**	**100,0**
5.25 At what age did you start to give your baby any food or liquids other than breast milk?	From birth	10	2,4
	1 or 2 months	10	2,4
	3 - 5 months	114	27,7
	After 6 months	210	51,0
	Exclusive breastfeeding	63	15,3
	Does not know/does not respond	5	1,2
	Total	**412**	**100,0**
5.26 Over the past 24 hours, has [NAME] been exclusively fed with breast milk?	Yes	70	17,0
	No	9	2,2
	Not applicable	333	80,8
	Total	**412**	**100,0**
Family planning			
6.1 Are you presently using any contraceptive methods?	Yes	224	54,3
	No	188	45,6
	Total	**412**	**100,0**
6.2 Which method are you (or your partner) using?	Female sterilization (tubal ligation)	36	8,7
	Male sterilization (vasectomy)	1	0,2
	The pill	27	6,6
	IUD	5	1,2
	Injectables	70	17,0
	Implants	61	14,8
	Condom	6	1,5
	Lactational Amenorrhea Method (LAM)	3	0,7
	Calendar-based methods	12	2,9
	Withdrawal	3	0,7
	Not applicable	188	45,6
	Total	**412**	**100,0**
Uses a modern contraceptive method?	Yes	206	50,0
	No	206	50,0
	Not applicable	0	0,0
	Total	**412**	**100,0**
6.3 In your opinion, how long should a woman wait between births?	Less than 2 years	26	6,3
	2 - 4 years	181	43,9

	5 years or more	188	45,6
	As long as she wishes	7	1,7
	Does not know/does not respond	10	2,4
	Total	**412**	**100,0**
Breastfeeding/feeding infants and small children			
Liquids or foods that [NAME] ingested yesterday during day and night			
6.4a Breast milk?	Yes	337	81,8
	No	75	18,2
	Does not know	0	0,0
	Total	**412**	**100,0**
6.4b Plain water	Yes	239	58,0
	No	173	42,0
	Does not know	0	0,0
	Total	**412**	**100,0**
6.4c Commercially-produced infant formula?	Yes	40	9,7
	No	372	90,3
	Does not know	0	0,0
	Total	**412**	**100,0**
6.4d Any fortified food for infants and small children	Yes	39	9,5
	No	373	90,5
	Does not know	0	0,0
	Total	**412**	**100,0**
6.4e Any porridge or gruel?	Yes	131	31,8
	No	281	68,2
	Does not know	0	0,0
	Total	**412**	**100,0**
Liquids or foods that he ingested yesterday during day and night, including in combination with other foods			
6.5a MILK. Commercially-produced infant formula?	Yes	40	9,7
	No	372	90,3
	Does not know	0	0,0
	Total	**412**	**100,0**
6.5b Milk such as tinned, powdered, or fresh animal milk?	Yes	161	39,1
	No	251	60,9
	Does not know	0	0,0
	Total	**412**	**100,0**
6.5c Cheese, yogurt, or other milk products?	Yes	163	39,6
	No	249	60,4
	Does not know	0	0,0
	Total	**412**	**100,0**
6.6d GRAINS. Any fortified food for infants and small children	Yes	39	9,5
	No	373	90,5
	Does not know	0	0,0
	Total	**412**	**100,0**
6.6e Any porridge or gruel?	Yes	131	31,8
	No	281	68,2
	Does not know	0	0,0
	Total	**412**	**100,0**

6.6f Bread, rice, noodles, or other foods made from grains?	Yes	282	68,4
	No	130	31,6
	Does not know	0	0,0
	Total	**412**	**100,0**
6.6g White potatoes, white yams, manioc, cassava, or any other foods made from roots?	Yes	271	65,8
	No	141	34,2
	Does not know	0	0,0
	Total	**412**	**100,0**
6.7h VEGETABLES. Squash, carrots, pumpkin, etc.	Yes	203	49,3
	No	209	50,7
	Total	0	0,0
6.7i Any dark-green, leafy vegetables?	Yes	130	31,6
	No	282	68,4
	Does not know	0	0,0
	Total	**412**	**100,0**
6.7j Mango, papaya, plantain	Yes	160	38,8
	No	252	61,2
	Total	**412**	**100,0**
6.8k OTHER FRUITS. Any other fruits or vegetables like oranges, grapefruit or pineapple?	Yes	205	49,8
	No	207	50,2
	Does not know	0	0,0
	Total	**412**	**100,0**
6.9l EGGS. Eggs	Yes	156	37,9
	No	256	62,1
	Total	412	100,0
6.10m MEAT. Liver, kidney, heart or other organ meats?	Yes	25	6,1
	No	387	93,9
	Does not know	0	0,0
	Total	**412**	**100,0**
6.10n Any meat, such as beef, pork, lamb, goat, guinea pig, or rabbit?	Yes	235	57,0
	No	177	43,0
	Total	0	0,0
6.10o Fresh or dried fish or shellfish?	Yes	51	12,4
	No	361	87,6
	Does not know	0	0,0
	Total	**412**	**100,0**
6.10p Grubs, snails, insects, other nourishment?	Yes	1	0,2
	No	411	99,8
	Does not know	0	0,0
	Total	**412**	**100,0**
6.11q LEGUMES/NUTS. Any food made of black beans, broad beans, peas	Yes	160	38,8
	No	252	61,2
	Does not know	0	0,0
	Total	**412**	**100,0**
6.12r OILS/FATS. Oil, grease, butter	Yes	259	62,9
	No	153	37,1
	Total	**412**	**100,0**
6.12s Review: How many food groups	0	80	19,4

have at least one "YES" marked?	1	12	2,9
	2	16	3,9
	3	21	5,1
	4	31	7,5
	5	56	13,6
	6	71	17,2
	7	77	18,7
	8	48	11,7
	Total	**412**	**100,0**
6.13t OTHER FOODS. Tea or coffee?	Yes	190	46,1
	No	222	53,9
	Does not know	0	0,0
	Total	**412**	**100,0**
6.13u Any other liquids?	Yes	150	36,4
	No	262	63,6
	Does not know	0	0,0
	Total	**412**	**100,0**
6.13v Any foods with sugar?	Yes	124	30,1
	No	288	69,9
	Does not know	0	0,0
	Total	**412**	**100,0**
6.13w Any other solid or soft food?	Yes	79	19,2
	No	333	80,8
	Does not know	0	0,0
	Total	**412**	**100,0**
6.13 How many times did he/she eat solid, semi-solid, or soft foods other than liquids yesterday during the day or at night?	0	96	23,3
	1	16	3,9
	2	57	13,8
	3	96	23,3
	4	81	19,7
	5	50	12,1
	6	13	3,2
	7	3	0,7
	Total	**412**	**100,0**
Vitamin A supplementation			
6.14 Has (Name) ever received a vitamin A dose?	Yes	280	68,0
	No	121	29,4
	Does not know	11	2,7
	Total	412	100,0
6.15 Did he/she received a vitamin A dose within the last 6 months?	Yes	198	48,1
	No	78	18,9
	Does not know	4	1,0
	Not applicable	132	32,0
	Total	**412**	**100,0**
6.16 Do you have a child health booklet or card?	Yes	306	74,3
	No	106	25,7
	Not applicable	0	0,0

	Total	412	100,0
6.18 Has he/she received a vaccine that is not recorded in this card?	Yes	38	9,2
	No	266	64,6
	Does not know	2	0,5
	Not applicable	106	25,7
	Total	**412**	**100,0**
6.19 Has he/she received the DTP vaccine?	Yes	90	21,8
	No	12	2,9
	Does not know	4	1,0
	Not applicable	306	74,3
	Total	**412**	**100,0**
6.20 How many times	1	13	3,2
	2	45	10,9
	3	32	7,8
	Not applicable	322	78,2
	Total	**412**	**100,0**
6.21 Did he/she ever receive an injection in the arm to prevent measles?	Yes	82	19,9
	No	19	4,6
	Does not know	5	1,2
	Not applicable	106	25,7
	Total	**306**	**74,3**
Control of diarrhea			
6.22 Has he/she had diarrhea in the last 15 days?	Yes	138	33,5
	No	274	66,5
	Total	**412**	**100,0**
6.23a He/she was given. A fluid called ORS made from a special packet?	Yes	39	9,5
	No	99	24,0
	Not applicable	274	66,5
	Total	**412**	**100,0**
6.23b A pre-packaged ORS liquid?	Yes	26	6,3
	No	112	27,2
	Not applicable	274	66,5
	Total	**412**	**100,0**
6.23c A government-recommended homemade solution?	Yes	12	2,9
	No	126	30,6
	Not applicable	274	66,5
	Total	**412**	**100,0**
ARIs/Pneumonia			
6.24 Has he/she had an illness with a cough that comes from the chest at any time in the last 15 days?	Yes	202	49,0
	No	210	51,0
	Total	412	100,0
6.25 When he/she coughed, did he also have difficulty breathing?	Yes	126	30,6
	No	76	18,4
	Not applicable	210	51,0
	Total	412	100,0
6.26 Did you seek counseling or care for the cough/rapid respiration?	Yes	145	35,2
	No	57	13,8
	Not applicable	210	51,0

	Total	**412**	**100,0**
6.27 Who gave you counseling or care?	Doctor	110	25,6
	Nurse	27	6,3
	Auxiliary nurse	2	0,5
	Trained community health promotor	145	33,8
	Other	6	1,4
	Not applicable	139	32,4
Total		**429**	**100,0**
Water and sanitation			
6.28 Do you treat your water in any way to make it safe for drinking?	Yes	223	54,1
	No	189	45,9
	Total	**412**	**100,0**
6.29 What do you usually do to the water to make it safe to drink?	Let it stand and settle/sedimentation	2	0,5
	Strain it through cloth	3	0,7
	Boil it	202	48,8
	Add bleach/chlorine	2	0,5
	Water filter (ceramic, sand)	0	0,0
	Solar disinfection	0	0,0
	Other	16	3,9
	Does not know/does not respond	0	0,0
	Not applicable	189	45,7
Total		**414**	**100,0**
6.30 Can you show me where you usually wash your hands and what you use to wash hands?	Inside / near toilet facility	116	28,2
	Inside/near kitchen / cooking place	71	17,2
	Elsewhere outside of the house	211	51,2
	No specific place	14	3,4
	Permission not granted to observe	412	100,0
	Total	**116**	**28,2**
6.31 Is there soap or detergent or any locally-used cleansing agent?	Soap	322	78,2
	Detergent	16	3,9
	None	74	18,0
	Total	**412**	**100,0**

Annex G: Breakdown of Costs for KPC Endline Survey

No.	DESCRIPTION	VALUE USD $
1.	Technical Assistance	4,600.00
2.	Field staff	11,850.00
3.	Training	240.00
4.	Per diem	700.00
5.	Car rental	3,850.00
6.	Others	1,125.00
	Total	22,365.00
7.	Administrative costs (5%)	1,118.00
	Total	23,483.00
	VAT 12%	2,817.96
	TOTAL	**26,300.96**

Annex H: SPSS File (electronic only)

ANNEX VII. COMMUNITY HEALTH WORKER TRAINING MATRIX

ANNEX VII. COMMUNITY HEALTH WORKER TRAINING MATRIX

Year	Project Area (Name of District Or Community)	Type of CHW	Official Government CHW or Grantee-Developed Cadre	Paid or Volunteer	Number Trained Over Life of Project			Focus of Training/Objective
					Male	Female	Total	
2010	Pujili	1) Staff from Pujili Area 2 2)TBAs (Traditional Birth Attendants) 3)Users 4) members of the local and parish governments 5) representatives of NGOs working in the canton	1,4)MOH personnel & other 2-3, 5) Other *	1,4,5)Paid 2,3)Volunteer	7	12	19	Conduct the first Humanization and Cultural Adaptation of Delivery Care Workshop
2010	Pujili	1) staff from Pujili Area 2 2)TBAs 3)users 4) members of the local and parish governments 5) representatives of NGOs working in the canton	1,4)MOH personnel & other 2-3, 5) Other	1,4,5)Paid 2,3)Volunteer	not available	not available	20	Conduct the second Humanization and Cultural Adaptation of Delivery Care Workshop
2011	Tantanacui	TBA	Other	Volunteer	30	70	100	Strengthen TBAs skills for participation in EONC community micro-networks; Guides 1 and 2
2011	Pujili	1)TBAs 2) MOH personnel & other institution	1) Other 2)MOH personnel & other	1) Volunteer 2) Paid	20	36	56	Training on CQC methodologies and micro-network management. Create teams to improve access and care of neonates in Pujili micro-networks and hospitals
2011	Tantanacui	TBAs	Other	Volunteer	46	126	172	Training on counseling of mothers in preparation for post-partum, ¿What is a micro-network?, Referrals, Counseling of pregnant women, Identification of at-risk cases, Identification of danger signs during pregnancy
2012	Saqusili & Sigchos	1)TBAs 2) MOH personnel & other institution	1) Other 2)MOH personnel & other	1) Volunteer 2) Paid	15	65	80	TBA Training
2012	Pujili	1)TBAs 2) MOH personnel & other institution	1) Other 2)MOH personnel & other	1) Volunteer 2) Paid	29	84	113	TBA Training
2012	Pangua	1)TBAs 2) MOH personnel & other institution	1) Other 2)MOH personnel & other	1) Volunteer 2) Paid	1	6	7	TBA Training
2012	Pujili, Saquisili & Sigchos	1)TBAs 2) MOH personnel & other institution	1) Other 2)MOH personnel & other	1) Volunteer 2) Paid	10	17	27	TBA Training & Measurement
2012	Salcedo	1)TBAs 2) MOH personnel & other institution	1) Other 2)MOH personnel & other	1) Volunteer 2) Paid	2	12	14	TBA Training & Measurement
2012	Pujili	TAPS (Tecnicos de Atencion Primariade Salud-Primary Care Health Technician)	Official Gov. CHW *	Paid	22	79	101	TAPS Training
2012	Saquisili	TAPS	Official Gov. CHW	Paid	10	18	28	TAPS Training
2013	Tantanacui	1)TBAs 2) MOH personnel & other institution	1) Other 2)MOH personnel & other	1) Volunteer 2) Paid	17	36	53	TAPS Training
2013	Sigchos	TAPS	Official Gov. CHW	Paid	8	15	23	TAPS Training
2013	Saquisili	TAPS	Official Gov. CHW	Paid	8	14	22	TAPS Training
2013	Salcedo	TAPS	Official Gov. CHW	Paid	13	52	65	TAPS Training focused on counseling with flipchart
2013	Pujili, Sigchos & Salcedo	1)TBAs 2) MOH personnel & other institution	1) Other 2)MOH personnel	1) Volunteer 2) Paid	6	64	70	TBA Measurement & Evaluation
2013	Salcedo	1)TBAs 2) MOH personnel	1) Other 2)MOH personnel	1) Volunteer 2) Paid	3	27	30	Newborn Care and Danger Signs
TOTAL							**1000**	

* TBAs were in existence before the project but are not considered part of the MOH.

* TAPS are considered MOH officals that work in the community

ANNEX VIII. EVALUATION SCOPE OF WORK

Annex VIII: Evaluation Scope of Work

Terms of Reference (Scope of Work) for
Final Evaluator External Consultant for the
Essential Obstetric and Neonatal Project
in Cotopaxi, Ecuador
7/14/2013

I. Introduction

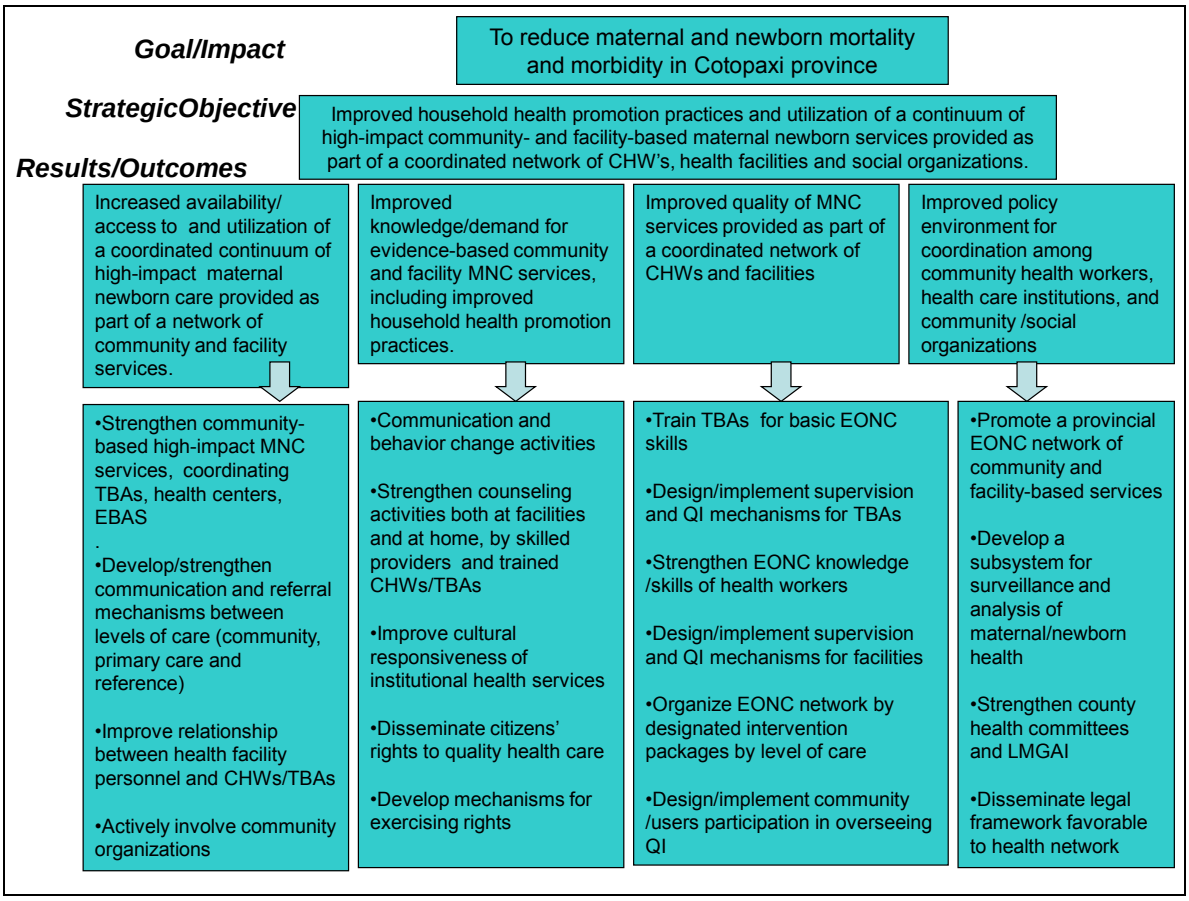
Center for Human Services (CHS) will hire an independent consultant to conduct a final performance evaluation (FE) for the Cotopaxi, Ecuador Essential Obstetric and Neonatal Care (EONC) project funded by USAID's Child Survival and Health Grants Program (CSHGP) GHS-A-00-09-00008-00 from September 30, 2009 to September 29, 2013 in Cotopaxi, Ecuador. USAID's CSHGP supports community-oriented projects implemented by U.S. private voluntary organizations (PVOs) and nongovernmental organizations (NGOs) and their local partners. The purpose of this program is to contribute to sustained improvements in maternal and child survival and health outcomes by supporting the innovations of PVOs/NGOs and their in-country partners in reaching vulnerable populations.

This document describes the Final Evaluator's SOW for the EONC Project FE.

II. Background

The CSHGP project in Ecuador is an Innovation and Operations Research Project focused on reducing maternal and newborn mortality rates through increasing access to and quality of Essential Obstetric and Neonatal Care services in the Cotopaxi province of Ecuador. The overarching project objective is to improve household practices and build a provincial-level network of coordinated maternal newborn health services, strengthening linkages between levels of care (community, primary, hospital) and along the continuum of antenatal, intrapartum and post-partum care. The project seeks specifically to strengthen coverage, utilization, coordination and quality of community and facility-based high impact, evidence-based services for mothers and newborns, with community services delivered by TBAs closely supported by health center staff and community organizations. Increased skilled care coverage is an important overall objective for the project.

The project´s Results Framework, including Strategic Objectives and Intermediate Results are illustrated in the table below:



III. Project Population

Beneficiaries*	Total
Total Population	172,904
Total Neonates	2812
Infants aged 0–11 Months	4161
Children aged <5 Years	20748
Women of Reproductive Age (15–49 years)	42654
Total Beneficiaries	67564
Expected Pregnancies	5202
Community Health Workers or Volunteers (CHWs), Disaggregated by Sex	TBA: F=207 M=32 TAPs: F=95 M=39
Health Facilities (Hospital to Sub Health Post)	15 Health Centers, 4 Primary Hospitals, 1 General Hospital, 16 Social Security Health Centers
Community-Based Structures (e.g., Village Development Committees [VDCs])	Not available

*Source: Population and Household Census-INEC 2010, Annual Births & Deaths INEC 2011, Population Projections INEC-MSP 2013.

IV. Partners

1. Ministry of Health of Ecuador. The Minister of Health Dr. David Chiriboga officially signed a Letter of Undertsanding and appointed the Division of Norms to coordinate with CHS for the implementation of the project.

2. Cotopaxi Provincial Ministry of Health (MOH) Office. The Provincial Director appointed a team of professionals to coordinate permanently with CHS for the implementation. Regular meetings with the local MOH team have been maintained at least every two weeks on average.

3. MOH facility staff- The project has worked with approximately 419 professional staff members of one provincial hospital, five county hospitals and 22 health centers.

4. Social Security (IESS) facility staff. The project worked with 35 professional staff of the IESS provincial hospital, and with 29 staff of 19 health centers of the Peasant Social Security program in Cotopaxi.

5. Community organizations and agents: The project worked with 204 Traditional Birth Attendants; 134 Primary Health Workers (TAPs), who are responsible for community work; 5 Emergency Transport Committees and 8 Community Health Committees.

6. Local NGOs: The project worked with the Zumbahua hospital of the Claudio Benatti Foundation; World Vision PDA Guangaje Program; Plan International; Populorum Progressio Foundation; Latacunga Radio; Sigchos Municipal Radio, Runatacuyay Radio; San Luis de Pambil Radio; Ecos del Pueblo Radio; Saquisili Radio; San Miguel de Salcedo Radio.

V. Key Activities

1) Strengthen community and home-based high-impact MNC services including coordination of such services with facility-based MNC services

2) Develop/strengthen communication and referral mechanisms between levels of care (Community, primary care and reference).

3) Introduce monthly meetings between TBAs and health centers´ personnel within parish-based micro networks, aimed at improving relationships between health facility personnel and TBAs and performance of all providers (skilled and TBAs).

4) Actively involve community organizations and parish government.

5) Communication and behavior change (BCC) activities.

6) Strengthen counseling activities in community, home and facilities by skilled providers and trained TBAs and CHWs.

7) Introduce standards for culturally-adapted birth care in MOH facilities, in order to improve cultural responsiveness of institutional health services.

8) Disseminate citizens' rights to quality health care.

9) Train and supervise TBAs for basic EONC skills.

10) Design/implement supervision and QI mechanisms for TBAs.

11) Strengthen EONC knowledge /skills of health workers.

12) Design/implement QI mechanisms for facility-based EONC.

13) Design/implement community /users participation in overseeing and supporting QI.

14) Promote a favorable policy environment for provincial EONC network of community and Facility-based services.

15) Develop a provincial system for surveillance and analysis of maternal/newborn health Indicators.

16) Design and implement an Operations Research activity aimed at improving coverage and quality of early post-partum home-based care at end line relative to baseline as measured by increased number of early post-partum home visits and improved competence of providers (TBA and skilled home-care providers).

VI. Purpose of the Final Evaluation

The purpose of USAID's CSHGP is to contribute to advancing the health system strengthening goals of Ministries of Health toward achieving sustained improvements in child survival and health outcomes, particularly among vulnerable populations, by supporting innovative, integrated community-oriented programming of PVOs/NGOs and their in-country partners. This FE is intended as a performance evaluation but should be broadly accessible to various audiences including the Ministry of Health of Ecuador and other partners previously mentioned. It is expected that findings will contribute evidence relevant to global initiatives such as the Global Health Initiative and Feed the Future.[1] It is important that the final evaluator consider the audiences listed below, when conducting the evaluation and writing the report.

This proposed FE will provide an opportunity for all project stakeholders to take stock of accomplishments to date and to present the views of beneficiaries at all levels, including mothers and caregivers, Traditional Birth Attendants (TBAs), representatives of parish micro-network teams supported by the project, community members and opinion leaders, health workers, health system administrators, Cotopaxi regional MOH and Social Security Representatives, local partners, other organizations, and donors. The FE Report will be used by the following audiences as a source of evidence to help inform decisions about future program designs and policies:

[1] For more information on these two initiatives, visit http://www.usaid.gov and http://www.feedthefuture.gov.

- In-country partners at national, regional, and local levels, including the Ecuador MOH, the Social Security Institute and the Peasant Social Security Program, the Zumbahua Program of the Claudio Benatti Foundation, various NGO partners previously listed, district and provincial health teams, local organizations, and communities in project areas.
- USAID (CSHGP, Global Health Bureau, USAID Mission in Ecuador and other CSHGP grantees).
- The international global health community. The FE report will be posted for public use at http://www.mchipngo.net and the USAID Development Experience Clearinghouse at https://dec.usaid.gov.

VII. Methodology

The evaluation methodology will consist of a mixed-methods approach using both quantitative and qualitative data. The approach will comprise a desk review of secondary data sources and a review of all project documents including the DIP, mid-term evaluation, KPC household baseline and end line survey data, final Operations Research report prepared by project staff, and the collection of qualitative data to complement existing data. The written design of the evaluation will be further refined and specified by the final evaluator and must be shared with project stakeholders and implementing partners for comment before the evaluation commences.

CHS will facilitate this sharing and feedback. Using the available and collected data, the evaluator will look into the achievements, the limitations and the processes involved in the application of the proposed innovations. The evaluator will also assess the extent of completion of Visits will be made to a county hospital, a kangaroo mother care program and a micro-network meeting will be observed to better understand and describe the project environment.

Secondary Data:

The final evaluator will review project reports (e.g., Detailed Implementation Plan (DIP); Annual reports; Mid Term Evaluation Report; Knowledge, Practice, and Coverage baseline and final home survey results/reports and data sources including ongoing project monitoring data) to assess the quality of quantitative and qualitative data and to assess overall project processes and results in relation to project objectives, design and targets. The final evaluator will also review relevant national policy and strategy documents (e.g. MOH policies) as well as U.S. Government/USAID strategic documents at global and national level relevant to the project content.

Quantitative Data:

The evaluator will undertake the following activities as part of a review of project quantitative data:

A review and statistical analysis of project documents that confirm project implementation and/or revision of planned activities to interpret the effects of the project on the project outcomes

A review and statistical analysis of quantitative baseline and end line household KPC surveys and project monitoring and evaluation data to assess the effectiveness of the overall project strategy. This review and analysis will:

- Describe changes in impact indicators (Maternal Mortality Ratio, Maternal Mortality Rate, Stillbirth, Pre-discharge neonatal mortality rate (NMR), NMR by place of birth;

- Assess improvement in access to care indicators (e.g. % of births attended institutionally or by micro-network traditional birth attendants (TBAs); % of newborns receiving institutional or micro-network TBAs post-natal care within 48 hours and within 7 days)

- Assess improvement in use of services (e.g. % of mothers of children 0-23 months old who, in the past year, had ≥4 ANC visits, ≥2 TT immunizations)

- Assess improvement in women's knowledge and practice (e.g. % of mothers of children 0-23 months old who, in the past year, initiated breastfeeding within an hour of delivery, exclusively breastfed, can name ≥2 pregnancy danger signs, ≥2 neonatal danger signs)

- Assess improvement in TBA's knowledge and practices (e.g. % able to name ≥2 danger signs of pregnancy, % of home visit essential early postpartum skills demonstrated via simulation)

- Assess improvement in institutional (Basic Hospital and Health Center) QOC (e.g. % Vaginal deliveries received active management of the third stage of labor (AMTSL), monitored progress of labor and delivery (L&D) using the partogram, provided corticosteroids for fetal lung maturation for threatened preterm delivery).

Qualitative Data:

In-depth qualitative interviews and/or focus group discussions will be conducted with stakeholders, including project staff, MOH office in Cotopaxi Province, MOH central office in Quito, Social Security authorities, local NGOs and community-based organizations, district health teams, community- and facility-based health workers, community members, community leaders, and mothers. The assessment will also include observations of activities supported by the project, including visits to parish micro-network team meetings in the Cotopaxi province and participating health centers and hospitals in the Cotopaxi province.

Specific activities will include key informant interviews, focus groups and/or rapid participatory group ranking method to be conducted in Quito and Cotopaxi to complement analysis of quantitative secondary data (described above) to better understand and describe the project environment including group characteristics and functioning, identify what those involved found was most important about the work/strategies (achievements/advances), what was least useful (limitations), if the project had any personal influence on them and what that was. The qualitative assessments will provide information on stakeholder and partner opinions on the importance of the project; the community's perspective of the project; the process of project implementation; and how the project addressed evolving contextual factors (e.g., changes in government/MOH); and lessons learned for future activities.

Specifically, interviews and focus groups will be conducted with: parish Micro-network participants, including skilled providers, TBAs, others; Provincial health care providers/EONC

(complete and basic) and communications teams; Provincial and central level MOH health care representatives/directors; USAID/Quito representative.

Visits will be made to a county hospital, a kangaroo mother care program and a parish level health care center. A parish micro-network team meeting will be observed to better understand and describe the project environment.

Limitations:

The evaluation report must include a discussion of the methodological limitations of the evaluation. Additional guidance on reporting format is provided in the CSHGP Guidelines for Final Evaluations, specifically in the Final Evaluation Report Template included therein.

VIII. Evaluation Questions

The final evaluator and the evaluation team will use existing data collected or compiled during the life of the project, as well as additional data collected during the evaluation to answer the following questions:

1. **To what extent did the project accomplish its strategic objective of improving more equitable access to, utilization of, and availability of a continuum of high-impact community- and facility-based maternal newborn services provided as part of a *coordinated network of TBAs, health facilities and social organizations?***

    a. How effective was the project in creating and sustaining: a) parish-level EONC "micro-networks" of community, primary health care providers and representatives; and b) county-level networks of community, primary and hospital services?

    b. To what extent was the project able to strengthen linkages and consistent communication between parish health centers and TBA's and to strengthen referral processes between TBAs, parish health centers, and country and provincial hospitals?

    c. Is there any qualitative or other evidence that the project's "equity strategy" of targeting services to the most vulnerable parishes in the Cotopaxi region improved access, utilization, and/or quality of home- and facility-based care (including cultural responsiveness of services) for targeted vulnerable beneficiaries (parishes with > 50% extreme poverty or > 40% indigenous Indians).

    What were the main challenges encountered and what project strategies were employed by the project with respect to each item?

2. **To what extent did the project achieve its objective to improve household maternal newborn best practices, including household knowledge, care-seeking and service utilization and self-reported behaviors?**

a. What were the challenges encountered and strategies employed by the project to improve household best practices (e.g. communications activities (jingles, etc);, TBA capacity-building for counseling, etc)

3. **To what extent was the project able to improve quality of maternal newborn care services provided at household, health center and hospital levels (by trained TBAs and skilled providers)?**

    a. What challenges did the project face and what strategies did the project use to try to continuously improve and monitor quality of TBA-provided home-based services and how effective were the strategies used?

    b. What were the main challenges encountered and strategies used to improve quality in health centers and hospitals and what were the areas of greatest and least gain based on project monitoring data, and why in the opinion of the evaluator?

4. **To what extent was the project able to promote a favorable policy environment to increase the likelihood that project gains would be sustained and scaled up after project completion?**

    a. What were strategies employed by the project to create a favorable policy environment including alignment with national and regional priorities and strategies and collaboration with Ministry of Health, Social Security, private partners and other stakeholders in the Cotopaxi region and at national level?

    b. To what extent was the project able to align its strategic approaches and interventions with existing systems, policies and national goals, so as to optimize national and local capacity to transform project innovations into sustainable policies and programs?

    c. Which elements of the project are most likely to be sustained or expanded and why and how?

5. **How well did the project achieve its central OR innovation of increasing coverage and quality of home- and facility-based <u>early</u> post-partum care for mother and newborn?**

    a. What are stakeholder perspectives on the OR implementation, and how likely is it that the OR study will affect capacity, practices, and policy in Ecuador?

    b. What were the main challenges encountered, the main achievements and lack of achievements, and the specific strategies employed by the project to try to realize its main OR innovation?

IX. Final Evaluator Characteristics and Expected Timeline

The consultant will serve as the evaluation team leader and is welcome to propose additional evaluation team members to round out the evaluation team's skill set in order to ensure adequate

representation of evaluation, technical, geographic, cultural and language skills. Team members, their affiliations, and disclosure of conflicts of interest must be listed in an annex to the evaluation report. The consultant will coordinate closely with the CHS team regarding tool finalization, evaluation methodology, timeline, and draft report finalization.

Requirements:

The consultant must be approved by USAID CSHGP and should meet the following minimum requirements:

- Proven expertise and leadership in
  - integrated community-oriented reproductive, maternal, newborn, and child health projects
  - conduct of evaluations (baseline, end line) using mixed methods
- Experience with design, collection, and analysis using applied research methods in a program implementation context
- Familiarity with public health system in Ecuador
- Demonstrated ability to communicate with and lead a team of stakeholders, staff, and national experts in participatory evaluation
- Familiarity with USAID programming
- Skill or familiarity with cost analysis methods for program assessments
- Excellent analytical and writing skills (English)
- Signed statement explaining any conflict of interest[2]

Key Tasks of the Evaluation Team Leader:

- Review project documents and resources to understand the project
- Refine the evaluation objectives and key questions based on the CSHGP guidelines in coordination with CHS team and its partners
- Develop the overall evaluation methodology and share with CHW for initial input and then with the MOH, USAID CSHGP team, and the USAID Mission in Ecuador for feedback.
- Develop the field evaluation schedule and assessment tools
- Train enumerators and team members on objective and process of the evaluation including evaluation tools
- Lead the team to complete the collection, analysis, and synthesis of supplemental information regarding the program performance

[2] CSHGP grantees are required to hire an external evaluator for the final evaluation. That fiduciary relationship creates a conflict of interest that is minimized by the CSHGP requirement of submission of a draft evaluation report directly to the CSHGP.

- Interpret both quantitative and qualitative results and draw conclusions, lessons learned, and recommendations regarding project outcome
- Lead an in-country debriefing meeting with key stakeholders, with a PowerPoint slideshow deliverable, no longer than 20 slides (with USAID/Washington, DC, participation remotely, as able)
- Prepare draft report in line with the CSHGP guidelines and submit to CSHGP and CHS simultaneously on or before September 1st.
- Prepare and submit the final report, which is due at the USAID CSHGP GH/HIDN/NUT office on or before 90 days after the end of the project.

Timeline:

The final evaluator will work up to 30 days with a scheduled 10 day site visit due to start in the second week of August 2013. Outside of country work will begin as early as July 8, 2013 and will continue until the Final Evaluation is submitted to USAID.

X. Final Evaluation Report

The FE report should follow the outline in USAID CSHGP's Guidelines for Final Evaluations. A draft and final report, written by the final evaluator, must be submitted directly to the CSHGP. Draft and final reports should be submitted according to the submission instructions as indicated in the guidelines.

XI. Budget

CHS will cover all agreed costs associated with the evaluation, including the evaluator travel and in-country expenses, based on a final agreed SOW and evaluation methodology approved by USAID. Covered costs include 30 days of labor by Final Evaluator, local travel to project sites, along with final evaluator's per diem, lodging and international airfare. Our estimated costs, excluding final evaluator's per diem, lodging and international airfare, related to the Final Evaluation are as follows:

Type of Expense	Estimated Expense
30 days of Labor of Final Evaluator	$18,000
Local Travel to Project Sites	$300
Total	$ 18,300

XII. Deliverables

At the conclusion of the consultancy period, the consultant is expected to complete the following deliverables:

- Lead an in-country debriefing meeting with key stakeholders (and remote participation by USAID/Washington, DC) with a PowerPoint presentation no longer than 20 slides for distribution
- Prepare a draft report in line with the CSHGP guidelines and submit to CSHGP and CHS simultaneously on or before September 1
- Prepare and submit the final report to the USAID CSHGP GH/HIDN/NUT office on or before 90 days after the end of the project, by December 30th.

EVALUATION METHODS AND LIMITATIONS

A mixed-methods evaluation using both quantitative and qualitative data was conducted. To provide a comprehensive final evaluation, the FE included:

1. Documentation: A review of critical background documentation (DIP, mid-term evaluation, other key documents, Annex II),

2. Quantitative Data: A review and statistical analysis of project documents that confirm project implementation and/or revision of planned activities to interpret the effects of the project on the project outcomes (Annex XIX);

3. Qualitative Data: Conversations with CHS staff in Quito and Cotopaxi responsible for the implementation, monitoring and evaluation of the project (Annex XI).

Documentation

A profound review of project documents was conducted to confirm project implementation and/or revision of planned activities and understand the environment (political, social, health, etc.) in which the project was conducted to interpret the effects of the project on the project outcomes, including strategies and policies. The documents reviewed are specified in Annex II.

Quantitative Data

A review and extensive statistical analysis of quantitative baseline and end line household KPC surveys and project monitoring and evaluation data was conducted to assess the effectiveness of the overall project strategy. This review and analysis was designed to:

a. Assess improvement in access to care indicators e.g. % of births attended institutionally or by micro-network traditional birth attendants (TBAs) and improvement in use of services, e.g. % of newborns receiving institutional or micro-network TBAs post-natal care within 48 hours and within 7 days, % of mothers of children 0-23 months old who, in the past (Table 2, Result/Outcome 1);
b. Assess improvement in women's knowledge and practice, e.g. % of mothers of children 0-23 months old who, in the past year, initiated breastfeeding within an hour of delivery, exclusively breastfed, can name ≥2 pregnancy danger signs, ≥2 neonatal danger signs, and improvement in TBA's knowledge and practices, e.g. % able to name ≥2 danger signs of pregnancy, % of home visit essential early postpartum skills demonstrated via simulation (Table 2, Result/Outcome 2)
c. Assess improvement in the quality of care (QOC), e.g., institutional (Basic Hospital and Health Center) QOC, % vaginal deliveries received active management of the third stage of labor (AMTSL), monitored progress of labor and delivery (L&D) using the partogram, provided corticosteroids for fetal lung maturation for threatened preterm delivery); and
d. Describe changes in impact indicators: (Maternal Mortality Ratio, Maternal Mortality Rate, Stillbirth, Pre-discharge neonatal mortality rate (NMR).

Qualitative Data:

In-depth qualitative interviews, question and answer sessions after presentations by project implementers and observation of network meetings and clinical care were conducted in Quito and Cotopaxi with stakeholders and project implementers to complement analysis of quantitative secondary data (described above) to better understand and describe the project environment and its implementation, including group characteristics and functioning. The qualitative assessments provide information on stakeholder, partner and implementers including care givers, and beneficiaries (women's) opinions on the importance of the project; the community's perspective of the project; the process of project implementation; and how the project addressed evolving contextual factors (e.g., changes in government/MOH); and lessons learned for future activities.

Key informant interviews were conducted with the stakeholders, including project staff, USAID, MOH office Social Security authorities, local NGOs and community-based organizations, district health teams, community- and facility-based health workers, community members, community leaders, and mothers. Specifically, these stakeholders include: parish micro-network participants, including skilled providers, TBAs, others ; Provincial health care providers/EONC (complete and basic) and communications teams; Provincial and central level MOH health care representatives/directors; and the USAID/Quito representative. Visits were made to a county hospital, a kangaroo mother care program and a parish level health care center and hospital in Cotopaxi, and a parish micro-network team meeting to observe the activities supported by the project and better understand and describe the project environment.

Data Quality and Use

The project baseline, mid-term and endline assessments and M&E data as well as MOH Health Information System (HIS) quantitative data are generally high quality. The MOH HIS has been well established over time in collaboration with URC-CHS as part of the previous USAID supported QAP and HCI projects. Qualitative and quantitative community and facility baseline information helped guide creation of simple and feasible data collection systems for essential project measures not currently captured in MOH HIS. The project carefully avoided duplication of a parallel (redundant) information system. New indicators to assess community-level EONC were created and systematically collected in a manner responsive to MOH mid and long-term priorities for sustainability at community and systems level by the project from its inception in each county, as data for these critical community-based outcomes (provision of early postnatal and postpartum care and community-based referral to a higher level of care) is not captured by the MOH Health Information System. The project also used innovative mechanisms to assess the quality of TBA services that simultaneously protect patient privacy and confidentiality, measured on a quarterly basis through observation of simulated TBA antenatal and post-partum care, with only occasional direct observation of patient care. Project staff worked closely with community organizations, provincial MOH, parish, county and other partners to support and strengthen a coordinated provincial, county, and parish maternal and newborn mortality surveillance system linked to local and provincial-levels to facilitate local review and action.

Baseline and Endline Household Surveys

CHS engaged CEPAR, an experienced local research organization, to conduct baseline and endline household surveys were conducted measure three sets of indicators (with overlap) to assess the project's influence on 1) Project-wide indicators; 2) Project Operations research indicators; and 3.USAID Rapid CATCH Indicators (except malaria and anthropometric data, which were excluded with USAID permission). The KPC household survey tool incorporated and adapted items from three independent survey tools: 1) 1) KPC Rapid Core Assessment Tool on Child Health (CATCH) 2008 (Version October 3, 2008); 2) Health Care Improvement (HCI) project Household Survey tool of Mothers with children 0-

23 months old (2010) which was originally developed for HCI maternal newborn projects in Mali and Afghanistan; and 3) Knowledge, Attitudes, and Practices (KAP) Survey on maternal and neonatal health (November 22, 2010 Version, CHS-Ecuador). The CHS-Ecuador team developed the questionnaire in collaboration with the local consultant team. The questionnaire was translated and sent to the CHS technical advisory team in Bethesda for review (Annex X).

The survey target population was mothers with a live child under 24 months of age living in rural parishes in Cotopaxi province. A sample of rural parishes from Cotopaxi counties was identified; urban parishes of the capital city, Latacunga, were not included in the sample. As is common with demographic health surveys, the survey sample size was designed to be representative of Cotopaxi. Using the following formula a total sample size of 462 households randomly selected from a census-based sample of 30 parishes from 7 counties of Cotopaxi province was required to produce representation of the area.

$$nz^2(pq) \div (d^2(n\text{-}1) + z^2(pq))$$

Where n = number of children 0-23 months of age per zone (using the 2009 INEC estimates), z=1.96 given a confidence limit (α error) of 0.05, p=proportion of malnourished children, q =100%-p, d=maximum admissible error.

The sample was selected using a three-stage sampling process in which the parishes from each of the 7 counties were selected oversampling for the primary intervention country, Pujilí, using lot quality assurance sampling techniques; these included all 21 parishes in which all components of the intervention were implemented and neighboring parishes that may have been exposed to the project mass media interventions. Once the parishes were selected, households within each parish were selected, and eligible women were then selected from each households. (Most households include only one eligible woman.) The original sampling frame is presented in Annex IX. To ensure financial and logistical feasibility, the sampling frame was revised to eliminate parishes where fewer than 4 households; the same number of households from other sample parishes in the same county were included to attain the planned sample size.

The baseline and endline survey reports (available in Spanish) did not conduct or report a pre- post intervention analysis or comparison. The local research organization provided the database for the endline survey on the first day of the evaluator's visit to Ecuador, however extensive data analysis was conducted during the trip and since. Key indicators to assess the four project results/outcomes (see Table 2) were analyzed by Chi-square tests comparing pre and post incidence using SPSS for Windows version 20. Four types of comparisons were analyzed: 1) Total sample (pre-post); 2) Pujilí in which the intervention was initiated in 2011 compared with Salcedo, Saquisilí and Sigcos in which the intervention was initiated in 2012, (relative baseline to endline change); 3) Intervention compared with non-intervention counties (relative baseline to endline change); and 4) Intervention compared with non-intervention counties excluding the more "urban" townships (relative baseline to endline change). Pearson 2-tailed significance levels are presented except where any individual cell in a cross-tabulation contains ≤5 observations in which case Fisher's exact 2-tailed significance levels are presented.

Monitoring and Evaluation Data

The data used for project monitoring came from numerous sources.

Access indicators: TBAs recorded their service provision on forms developed for the project; these forms were submitted on a monthly basis to the parish doctor charged with review and collection of these M&E forms during the project's network meetings. Data on referrals and their outcomes were collected on a monthly or quarterly (depending on the indicator, for example data on referral and use of services for complications were collected quarterly as the event incidence is relatively rare) from retained project referral slips from the health facilities.

Knowledge: TBA knowledge (of danger signs, best practices, etc.) was assessed by interview quarterly.

Quality of Care: TBA quality of care was assessed quarterly by observation of simulated cases. Quality of facility-based skilled care providers' care was initially assessed by an external observer and later by review of monthly QI HIS reports on a quarterly basis. The percent of TBAs providing home-based postpartum and post-natal visits within 2 days of delivery was calculated on a semi-annual basis.

Impact indicators: Stillbirth, maternal and newborn mortality rates were abstracted from annual INEC reports of births and deaths. Pre-discharge newborn mortality rates were abstracted quarterly from intervention area hospital reports.

The monitoring and evaluation data were provided before the evaluator's visit to Ecuador, therefore these data were transferred into analyzable data sets in advance. Key monitoring and evaluation indicators to assess the four project results/outcomes (see Table 2) were analyzed by Chi-square tests comparing the first (pre) and last (post) trimester (3 months) or the first and last measured incidence (the analyses presented specify which) and by regression curve estimation using SPSS for Windows version 20. Outcomes for which data were provided cumulatively for each month or trimester per calendar year were disaggregated to provide monthly or quarterly estimates; rather than simply dividing the annual estimated number of deliveries by 12 which could result in incidence >100%, provincial INEC data were used to estimate the proportion of deliveries per month thus producing more accurate rate denominators. Pearson 2-tailed significance levels are presented except where any individual cell in a cross-tabulation contains ≤5 observations in which case Fisher's exact 2-tailed significance levels are presented.

Ethical Approval

The baseline and endline household surveys and operations research (including monitoring and evaluation data) were approved by the CHS Institutional Review Board (IRB). The evaluator took notes during the final evaluation key informant interviews; the information is summarized but not transcribed and the individual sources are not identified.

Limitations:

Baseline and Endline Household Surveys

The household survey has a number of limitations. The baseline survey was designed to assess the intervention and similar counties in Cotopaxi Province. With distinct characteristics, La Maná county was to have been excluded from the survey, but was inadvertently included in the baseline survey; the county has been excluded from all data analysis. The endline survey excluded La Maná county and made up the sample size difference, in large part by oversampling Latacunga county, which diminished the proportion of the Pujilí sample, the single county where the intervention was implemented over a two rather than one year period. Neither the baseline nor endline survey were to include parish townships, yet both did. While the household survey remained consistent between baseline and endline surveys, the sample and its proportional representation changed. Consequently, significant differences in ethnicity and profession were observed between the baseline and endline samples, whereas the age, education and marital distributions were similar. The baseline and endline samples had a similar representation of the counties in which the full intervention (Pujilí, Salcedo, Saquisilí and Sigcos) was implemented (baseline 61%, endline 58%, n.s.) and neighboring counties that may have also been exposed to the mass media communications component of the intervention, and similar rural (baseline 56%, endline 58%, n.s.) and township representation, a much smaller proportion of the endline survey was conducted in Pujilí (baseline 33%, endline 21%, p≤.001), the single county with the longest intervention implementation, which could underestimate the estimates of project effect, assuming that greater effect would be observed where the intervention had the greatest duration of implementation. Differences in baseline and endline sample may merit statistical control through regression or sample weighting techniques to adjust for these differences.

It is also recommended, in future, to have an independent expert review of the sample selected prior to implementation of each (baseline, endline) survey to ensure adherence with the terms of the contract and sample similarity.

Monitoring and Evaluation Data

Data collection for some M&E indicators encountered problems. For example, the percent of women with their first antenatal care (ANC) visits at a facility or at home exceeded 100% because some women visited more than one facility for ANC and each facility recorded women's first visit to that facility as the woman's first ANC visit. As the project focused on obstetric and neonatal care, particularly around labor, delivery and the postpartum/postnatal period, antenatal care indicators are not considered key indicators to assess the project. However, referral and receipt of care for referrals are key indicators but the information is incomplete and unreliable. Facility-based providers were to have saved the TBAs referral forms and provided them to project staff at their monthly and quarterly facility visits. However, providers apparently paid little heed to saving these forms but rather first and foremost dedicated their attention to examining and managing women's and newborns' complications as they presented to the emergency rooms. Impact data were not available except for the newborn mortality rate for the 2010 (the year before the intervention was implemented) and 2011.

The HIS QI system randomly select and review 30 patient charts for all antenatal, labor and delivery, postpartum and neonatal visits from the full prior month prior to the assessment, except for indicators of complications for which all charts of complicated cases seen in the prior month were to be reviewed (on the presumption that fewer than 30 complicated cases would present in any given month). These data indicate the proportion of reviewed charts where care is fully compliant with each norm. All 11 requirements as specified in the MOH standards for newborn care must be met to be fully compliant with essential newborn care. Reported compliance with newborn essential care prophylaxis to prevent neonatal ocular infection, which should be provided to all newborns, is unreliable because the norms recommend a specific brand of medication that has been unavailable for a number of years. While suitable substitutes have been available and likely used, some clinics report compliance with this indicator literally while others do so figuratively. This indicator is, at the time of writing this report, being modified to support accurate reporting. Still, the monitoring and evaluation estimates of compliance with essential newborn care presented in this report likely underestimate true (figurative) compliance.

The CSHPG M&E data might have been more useful for project review and decision-making had its database been better organized for review and formal analysis. For example, indicators of access to care used an expected denominator and cumulatively added cases to the numerator over time. Even without an exact denominator (which might have required extensive and relatively expensive household survey techniques), the information most useful for decision making would be monthly access, e.g., monthly cases divided by (expected annual denominator divided by 12 or the estimated number of monthly births). The project assumed enormously challenging goals and objectives, and integration of pre-programmed electronic data collection might have added a level of complexity beyond the scope of the operations research, but may be a worthwhile consideration for future efforts. Completing survey and monitoring and evaluation data collection, processing, KPC and OR Reports two or three months prior to the final evaluation might have greatly facilitated the FE process.

Original and Revised Baseline and Endline Sampling Frame

	Original			Revised		
COUNTY	**PARISH**	**SAMPLE n**	**NUMBER OF SECTORS**	**PARISH**	**SAMPLE n**	**NUMBER OF SECTORS**
Latacunga	Latacunga (periferia)	38	8	40	8	
	Aláquez	6	1	6	1	
	Belisario Quevedo	7	1	7	1	
	Guaytacama	10	2	10	2	
	Joseguango Bajo	2	1			
	Mulaló	9	2	9	2	
	11 de Noviembre	2	1			
	Poaló	7	1	7	1	
	San Juan de Pastocalle	13	2	14	2	
	Tanicuchí	11	2	12	2	
	Toacaso	9	2	9	2	
		114	**23**	**114**	**21**	
La Maná	La Maná	37	7	40	7	
	El Carmen					
	Guasaganda	5	1	5	1	
	Pucayacu	3	1			
		45	**9**	**45**	**8**	
Pangua	El Corazón	8	2	9	2	
	Moraspungo	14	2	16	2	
	Pinllopata	1	1			
	Ramón Campaña	2	1			

		25	**24**	**25**	**20**
Pujilí	Pujilí	37	7	37	7
	Angamarca	19	4	19	4
	Guangaje	19	4	19	4
	La Victoria	19	4	19	4
	Pilaló	19	4	19	4
	Tingo	19	4	19	4
	Zumbahua	19	4	19	4
		151	**31**	**151**	**31**
Salcedo	San Miguel de Salcedo	37	7	41	7
	Antonio José Holguín	3	1		
	Cusubamba	7	1	8	1
	Mulalillo	7	1	8	1
	Mulliquindil	8	2	8	2
	Pansaleo	3	1		
		65	**13**	**65**	**11**
Saquisilí	Saquisilí	18	4	19	4
	Canchagua	6	1	6	1
	Chantilín	1	1		
	Cochapamba	5	1	5	1
		30	**7**	**30**	**6**
Sigchos	Sigchos	10	2	12	2
	Chugchilán	8	2	9	2
	Isinliví	4	1	5	1
	Las Pampas	3	1		

Palo Quemado	1	1			
	26	**7**	**26**	**5**	
Total provincia	**456**	**114**	**456**	**102**	

ANNEX X. DATA COLLECTION INSTRUMENTS

Due to the size of this annex it is only being presented in soft form.

ANNEX XI. SOURCES OF INFORMATION

DOCUMENTS REVIEWED

1. Detailed Implementation Plan August 2010 Cotopaxi, Ecuador Essential Obstetric and Neonatal Care (EONC) Project
2. MidTerm Evaluation: Ecuador Essential Obstetric and Neonatal Project Reaching Indigenous & Underserved Populations A Model for the Household to Hospital Continuum of Care Center for Human Services Cotopaxi, Ecuador
3. MidTerm Evaluation Annexes
    a. Annes 16-Draft of Neonatal Death Epidemiological Surveillance System Plan and Manual (Spanish)
    b. Annex 1-List of Publications and Presentations Related to the Project
    c. Annex 12-Guide for Referrals and Counter referrals (Spanish)
    d. Annes 13-Handout for Obstetric and Neonatal Emergencies (Spanish)
    e. Annex 14-Legal Framework Guide (Spanish)
    f. Annex 15-Guide for Formation of Networks (Spanish)
4. KPC Documents
    a. Center for Human Services - Ecuador REPORT ON THE BASELINE KNOWLEDGE, PRACTICE AND COVERAGE SURVEY May 2010 CHILD SURVIVAL PROJECT in Cotopaxi province, Ecuador
    b. KPC Sampling Procedures Document (DICC_CAP_CHS_2013.xls)
    c. FINAL KPC DOCUMENTS 2013
        i. DOCUMENTO CON RESULTADOS CONE.DOC
        ii. INFORME DE LA INVESTIGACIÓN.doc
5. Project Operations Research Concept Paper 2010 and Draft (No OR Results) 2013
6. Major Project Reports
    a. Project Annual Report 2010
    b. Project Quarterly Reports
    c. Project Progress Report January-July 2011
    d. Project M&E Plan
    e. Project Training Plan
    f. Project Work Plans 2010 and 2011
    g. Project Results Highlight 2010
    h. Project Summary August 2010
    i. Guia Metodológica Microredes
    j. GUIA PARA ORGANIZAR UN PLAN DE EMERGENCIA COMUNITARIO (2)
    k. Guia para usar el Tarjetero
7. Last version of EONC Norms 2013: Ultima version NORMA CONE revisión final 17.05-13
8. Actividades proyecto red Cone NS
9. Report on Norms for Improving Quality of Care and Strengthening the Network for Maternal-Neonatal Care in Cotopaxi Province
10. Project Training/Implementation Documents
    a. MANUAL CAPACITACION CONE COMUNITARIO PARTERAS
    b. MANUAL MCC RED CONE Revjunio13

c. MATRIZ CONSOLIDADO ATENCIONES PARTERAS 2013
d. Matriz para la elaboración de Ciclos Rápidos de Mejora para Microredes CONE
e. Matriz registro atenciones PARTERAS 8[1]
f. BCC Strategy: ESTRATEGIA DE COMUNICACIÓN PARA EL CAMBIO DE COMPORTAMIENTOS (CCC) COTOPAXI – ECUADOR Septiembre 2011
g. Humanization and Cultural Adaptation of Delivery Care
h. Kangaroo Mother Care Counseling Poster
i. Kangaroo Mother Care Training Document
j. Radio Workshop Strengthening Communication Capacity: TALLER DE RADIO Manual de Capacitación para el Fortalecimiento de capacidades de comunicación
k. Helping Babies Breathe Training Guide
l. Intercultural Care Workshop Reports, October 2010, February 2011
m. Artes folleto PLAN DE EMERGENCIA COMUNITARIA
n. Artes portada PLAN DE EMERGENCIA COMUNITARIA
o. FOLLETO/FICHA PLAN DE PARTO 5
p. Rotafolio consejería CONE parteras personal salud
q. Capacitación Estrategia CONE Santo Domingo

11. Project Data Collection Documents
a. Report on Epidemiological Surveillance System for Neonatal Mortality in Cotopaxi
b. Plan for Epidemiological Surveillance System for Neonatal Mortality in Cotopaxi
c. INSTRUMENTOS AUTOMEDICION MEJORA DE LA CALIDAD
d. INSTRUMENTOS DE RECOLECCION DE DATOS PARA MEDIR ESTÁNDARES
e. Modulo Total_PROVEEDOR CC
f. Modulo_total_ facilitador CC
g. Monitoreo Calidad Area modelo 13
h. Monitoreo Calidad Provincia modelo 13
i. Monitoreo Consolidado Areas Provincia MODELO
j. Monitoreo Consolidado Micro Redes del Area MODELO
k. Monitoreo Micro Red MODELO
l. Registro embarazadas y RN con tamizaje3
m. .Matriz registro PARTERAS 8
n. FORMULARIO ENCUESTA_DE_PARTERAS
o. FORMULARIOS OBSERVACIONES SIMULADAS PARTERAS
p. Base para procesar encuestas de parteras
q. BASE PARA PROCESAR OBSERVACION A PARTERAS
r. INSTRUMENTOS AUTOMEDICION MEJORA DE LA CALIDAD
s. Annex- Year 1-4 ME Table

12. MOH Documents

a) MOH Report on Adolescent Health Situation, HIV/AIDS, Pregnancy in Ecuador 2010

b) National Accelerated Plan to Reduce Maternal-Neonatal Mortality MOH 2008 and 2013
c) MOH Technical Guide for Culturally Sensitive Birth
d) La parte de la nueva Constitución del Ecuador que declare que el acceso a servicios de salud de calidad son un derecho constitucional para todos Ecuatorianos (ley nacional de salud general - o ley general de salud nacional, no estoy segura cual)
e) Lessons Learned from Continuous Improvement in Quality of Maternal-Neonatal Care MOH 2008
f) MOH Standards (Protocols) Manual of Indicators and Instruments to Measure Quality of Maternal-Neonatal Care 2008

PRESENTATIONS ATTENDED/REVIEWED

1. Contenido CONE intervenciones EVALUACION 6 agosto 2013
2. Informe Técnico de Situación y avances Saqui_sigchos
3. Microredes Dra Carmita Pérez MSP Agosto 2013
4. HACAP AGOSTO
5. PARTERAS CAPACITACION
6. Resultados Técnicos de Capacitación Clínica

DATA REVIEWED/ANALYZED

1. Monitoring and Evaluation:
    a. Tabla de monitoreo y evaluacion 3 Julio 2013
    b. Monitoreo Consolidado MicroRedes Pujilí Rev
    c. Monitoreo Consolidado MicroRedes ELCORAZÓN Rev
    d. Monitoreo Consolidado MicroRedes SALCEDO Rev
    e. Monitoreo Consolidado MicroRedes Saqui-Sig Rev
    f. 25.NUMERO MN PARROQUIAS DEL PROYECTO RED CONE COTOPAXI 2008 a 2011
2. Household Survey:
    a. Baseline: cap_ultimoDeidentificado.sav
    b. Endline: chs_cap_2013_Final.sav
3. NMR:
    a. Tasas muerte neonatal cantones Cotopaxi
    b. INEC data Población provincias y cantones CENSO 2010

ANNEX XII. DISCLOSURE OF ANY CONFLICTS OF INTEREST

Name	Nancy L. Sloan
Title	Final Evaluation Consultant
Organization	N/A
Evaluation Position	X Team Leader ☐ Team Member
Evaluation Award Number *(Contract or other instrument)*	*GHS- A-00-09-00008-00*
USAID Project(s) Evaluated *(Include project name(s), implementer name(s) and award number(s), if applicable)*	Essential Obstetric and Neonatal Care Project in Cotopaxi, Ecuador implemented by Center for Human Services (CHS) through GHS- A-00-09-00008-00
I have real or potential conflicts of interest to disclose.	☐ Yes ☑ No
If yes answered above, I disclose the following facts: *Real or potential conflicts of interest may include, but are not limited to the following:* *1. Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated* *2. Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation* *3. Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project*	
4. Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s)	

are being evaluated 5. *Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated* 6. *Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation*	

I certify (1) that I have completed this disclosure form fully and to the best of my ability and (2) that I will update this disclosure form promptly if relevant circumstances change. If I gain access to proprietary information of other companies, then I agree to protect their information from unauthorized use or disclosure for as long as it remains proprietary and refrain from using the information for any purpose other than that for which it was furnished.

Signature	Nancy Klaw
Date	June 13, 2013

ANNEX XIII. STATEMENT OF DIFFERENCES

After reviewing the Final Evaluation prepared by

Nancy Sloan, CHS has no further comments.

ANNEX XIV. EVALUATION TEAM MEMBERS, ROLES, AND THEIR TITLES

The final evaluation was conducted autonomously by the consultant, Nancy L. Sloan, DrPH. Dr. Sloan met with the CHS Technical Team, CHS Network members, the Ministry of Health Directorate of Public Health Norms (central level), Directorate of the Cotopaxi Provincial Health Technical Group Members, Area Health Representatives, IESS Representatives,

1. **Directorate of Public Health Norms MOH:** Dr. Francisco Vallejo, Dra. Ivonne Martínez; **CHS:** Jorge Hermida, Miguel Hinojosa (Project PI/Director). Kathleen Hill (Project Co-Director)
2. **USAID:** Paulyna R. de Martínez; **CHS:** Kathleen Hill; Jorge Hermida
3. **Director Provincial de Salud:** Dr. Susana Moscoso (MD), Carmita Perez (Nutritionist), **Technical Team HSPG**; Dr. Gonzalo Fren (Attending Doctor), **Health Area Peasant Social Security (SSC) Representatives:** Dr Ramiro Arias: Dr. Lizaro G Friere (Attending Doctor), **CHS:** Jorge Hermida, Mario Chávez (Latacunga, Cotopaxi Project Coordinator)
4. **CHS Network and Technical Group Members:** Kathleen Hill; Jorge Hermida; Mario Chávez; Juana María Freire; Washington Masapanta; Ximena Gudiño, Miguel Hinojosa, Lorena Carranza; María Elena Robalino.
5. **Guangaje Parish Micro-network Members:** Dra Hidalgo; Sr Eduardo Ugsha): MOH Health Center Personnel, SSC, traditional birth attendants, TAPS; **CHS:** Mario Chávez, Juana María Freire, Jorge Hermida, Kathleen Hill.
6. **EMC Basic Hospital Básico Rafael Ruiz de Pujilí:** Silvio Flores (MD), Mariana Neto (RN), Aida Naranjo (RN), Eduardo Ugsha (MOH Support), Monica Hidalgo (MD), Marcelo Ramirez (MD), Natalia Villalba (RN), Johanna Noranjo (RN), Anita Orbea (TH), Nelly Vela (TH); **CHS:** Mario Chávez, Juanita María Friere, Jorge Hermida, Kathleen Hill, Maria Elena Robalino, Stalin Villavicencio (Project Coordinator MD)
7. **Pujilí County EONC Parish Micro-Network Members, District EONC Network Members:** Raul Tipan Toaquiza (TBA), Maria Juana Toaquiza Vega (TBA), Maria Elena Oto Lotoala (TBA), Francisco Toaquiza Vega (TBA), Cesar Antonio Lotuala Toaquiza (TBA), Luz Mullo Yumiaba (RN), Alicia Gaibor Verdezoto (RN), Naranjo Aida (RN), Nelly Vela (RN District), Ilaquiche Vega Monuel (TBA), Maria Isolinda Guanina Guanina (TBA), Maria Merchora Pastuña Monzano (RN), Mariana Neto (RN), Francisco Choloquinga (Technician), Gina Raquel Loachamin (Dentist), Ana Christina Garotalo

(Rural Doctor), Pascuala Toaquiza Toaquiza (TBA), Maria Fabiola Chuchiparte Toaquiza (TAP), Maria Nicolasa Tipan (TBA), Maria Hortensia Pastuña Monzano (TBA), Maria Cecilia Ugsha Tipan (TAP), Maria Josefina Mazano (TBA), Laura Izabel Toaquiza T (TAP), Rosa Elvira Socatoro Tipan (TBA), Augustin Lutuala Lutuala (TBA), José Manuel Ugsha Chagchilan (TBA), Maria Luz Guanina Vega (TBA), Maria Olga Toaquiza Licto (TAP), Ricardo Toaquiza Ilaquiche (TAP), Elena Zambrano, **MOH:** Eduardo Ugsha (MOH Service upport), Giovanny Bonilla (Coordinator), **CHS:** Mario Chávez, Juanita María Friere, Jorge Hermida, Kathleen Hill, Maria Elena Robalino, Stalin Villavicencio.

8. **Latacunga Provincial General Hospital EMC and KMC Team Equipo members; CHS:** Mario Chávez, Miguel Hinojosa, KMC and **Neonatology Service Representatives:** Dr Arcos; Lic. Guallichico.
9. **CHS Latacunga Technical Team:** Ligia Jácome (Enfermera), Johana Guanoquiza (RN), Adriana Reinoso, Mayra herrera, Paulina Belén Carrasco, Chris Romo Montalvo, Paola Villafuerte, Patricia Lisscote Martinez (IRM), Ximena Gualichico (RN), Patricia Bustamante (RN, coordinator), Gonzalo Arcos (Pediatrician), Ruth Viscarra (Dentist); **CHS** Jorge Hermida, Kathleen Hill, Mario Chávez, Stalin Villavicencio (Project Coordinator MD)
10. **CHS Quito Technical Team of EONC Network Project:** Jorge Hermida, Ximena Gudiño, Lorena Carranza
11. **USAID Debriefing:** Meredith Crews, MPH CSHPG, Nazo Kureshy Kristina Gryboski, Paulyna R. de Martinez; **CHS** Jorge Hermida

ANNEX XV. FINAL OPERATIONS RESEARCH REPORT

Improving Postpartum Best Practices for Mothers and Newborns in Rural Ecuador

Kathleen Hill, Center for Human Services
Jorge Hermida, Center for Human Services
Mario Chavez, Center for Human Services

September 2013

The Cotopaxi Essential Obstetric Newborn Care (EONC) project in Cotopaxi Province, Ecuador, is supported by the American people through the United States Agency for International Development (USAID) through its Child Survival and Health Grants Program. The EONC project is managed by the Center for Human Services under Cooperative Agreement No. GHS-A-00-09-00008-00. The views expressed here do not necessarily reflect the views of USAID or the United States Government.

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Acronyms

ACS	Antenatal Corticosteroids
AMTSL	Active Management of Third Stage Labor
ANC	Antenatal Care
BF	Breastfeeding
CHS	Center of Health Services
CHW	Community Health Workers
CSHGP	Child Survival and Health Grants Program
ENC	Emergency Neonatal Care
EONC	Essential Obstetric and Newborn Care
INEC	Ecuadoran National Institute of Statistics and Census (Instituto Nacional de Estadísticas y Censo)
KPC	Knowledge, Practice and Capacity
MOH	Ministry of Health
NGO	Non-Government Organization
OR	Operations Research
PPH	Postpartum Hemorrhage
PROM	Premature Rupture of Membranes
SBA	Skill birth attendant
SBCC	Social Behavior Change Communication
TBA	Traditional Birth Attendant

Ecuadoran mother swaddles her newborn in the Kangaroo position.

Key Findings:

- **Postpartum/postnatal visits within the first 2 days of birth increased from 63% to 88%.**
- **Facility deliveries using AMTSL increased from 68% to 97%.**
- **Newborns receiving postnatal care within 48 hours of birth increased from 52.5% to 81% in intervention parishes, nearly double the increase in the non-intervention group.**

Improving Postpartum Best Practices for Mothers and Newborns in Rural Ecuador

This operations research was funded by the U.S. Agency for International Development through the Child Survival and Health Grants Program from 2009 to 2013.

September 2013

Executive Summary

Background and Setting

This report presents the results of operations research that examined interventions implemented by a project manager by the Center for Human Services in Ecuador's Cotopaxi province from 2009 to 2013. The interventions were part of the Cotopaxi Essential Obstetric and Newborn Care (EONC) project, which was part of the USAID Child Survival and Health Grants Program.

The EONC project, including the research reported here, was implemented in 21 (of 38) rural parishes in Cotopaxi. The province is in a mountainous region in the Ecuadorean Andes, approximately 130 kilometers south of Ecuador's capital, Quito. With 384,449 inhabitants distributed among seven counties, Cotopaxi has a large rural population (67%), a third of which is Ecuadorian Indian (28%) and most of which is poor (90%), with low access to and use of skilled maternal-newborn health care services. The 21 project parishes, with among the highest maternal and newborn mortality rates in Ecuador, were deliberately selected as part of an equity strategy; selection criteria included >40% Ecuadorian Indian and >50% extreme poverty.

OPERATIONS RESEARCH EXECUTIVE SUMMARY

Problem and Solution

The intra-partum and early-postpartum period (the first two–three days after birth) is the time of highest mortality risk for mothers and newborns. Despite strong international evidence of the positive effect on maternal and newborn mortality of early-postpartum best practices, including during household and community- and home-based care, most women and newborns in Cotopaxi province have not benefitted from such practices. Contributing to increased vulnerability for women and newborns in the first week after birth in the province are:

- Poor household compliance with maternal and newborn care best practices,
- A lack of home- or facility-based early-postpartum services,
- Early discharge from facilities after delivery,
- Delayed recognition of danger signs and (delayed) care seeking, and
- A lack of linkages and effective referral mechanisms between traditional birth attendant (TBA) home care and formal health system services.

Seeking to improve the coverage and quality of early-postpartum services, enhance household knowledge, and increase the use of best practices, the project's main innovation was the introduction and implementation of a province-wide EONC network. The network has three interacting levels**:** 1) a parish-level "micro-network" (described below) that unites community and primary health care providers and representatives; 2) a county-level network that coordinates community, primary, and hospital services at that level; and 3) coordination of referral-level comprehensive obstetric and neonatal services in the provincial capital hospitals. For generations, childbirth systems co-existed in the traditional community and formal health care sector with little cooperation and considerable mutual distrust. The formation and support of parish-level micro-network teams in each project parish was at the heart of bringing these systems together.

Intervention

The operations research (OR) intervention, implemented as part of the EONC project combined early-postpartum service delivery (home and facility, including clinical care and counseling) and a social behavior change communication (SBCC) intervention. The service delivery and SBCC interventions were introduced in two phases in the 21 parishes. In the first phase (2009–2011), the OR intervention and other project interventions were introduced in seven parishes in Pujili county, the county hospital, and the tertiary provincial hospital. That phase was intended to generate learning for extending the intervention to the phase two parishes. In that phase (2012–2013), the OR intervention and other project interventions were extended to the remaining 14 project parishes.

The combined OR service delivery and SBCC interventions focused on 1) building the capacity and performance of front-line, parish micro-network teams to provide high-quality postpartum services for women and their newborns in project parishes (after both home and facility deliveries) and 2) disseminating SBCCs, primarily through media, such as radio.

The micro-network teams were supported to use both findings from the baseline household assessment and their own knowledge of the local setting to identify and prioritize key barriers to the delivery of early-postpartum services at the household and facility levels. These teams were comprised of community and social organization representatives, TBAs, midwives, nurses and doctors. They met monthly to review progress and troubleshoot challenges.

Methods

The study design used a pre-post intervention design to assess the degree of change from baseline to endline; it also compared intervention and non-intervention sites. Due to resource constraints, non-intervention parishes neighbored intervention parishes and were not randomly selected, making it impossible to limit the effects of the SBCC intervention to intervention sites (since media messages could not be limited to intervention parishes).

Key data collected and analyzed were 1) baseline and endline household survey results to enable us to calculate changes in household best practices and 2) project monitoring data to enable us to calculate changes in coverage and in the quality of early-postpartum services provided by skilled providers in facilities and by trained TBAs and/or skilled providers in homes. Our analyses focused on assessing project impact on 1) access to postpartum care (in a facility and at home); 2) household knowledge and self-reported postpartum best practices; 3) TBA knowledge, performance, and provision of early-postpartum home services; and 4) coverage and quality of facility early-postpartum services for mothers and newborns.

Findings

The OR intervention was associated with significant and large improvements in household survey results from baseline to endline with respect to knowledge, best practices, and satisfaction. This association applies to all household samples and the rural intervention and (rural) non-intervention parishes. In the total sample, significant increases were seen in the following proportions from baseline to endline (all $p \leq 0.001$):

- Mothers who exclusively breastfed for six months (39% to 51%),
- Mothers who could name two newborn danger signs (75% to 97%),
- Mothers who could name two postpartum maternal danger signs (66% to 93%), Mothers making at least two birth preparations before the birth of their youngest child (57% to 73%),
- Mothers who knew at least two birth preparedness steps (68% to 81%), and
- Mothers who knew at least two danger signs during labor/delivery 54% to 88%.

Furthermore, with respect to early-postpartum care, a significant increase was observed in the proportion of postpartum/postnatal visits within the first two days of birth: The rate rose from 63% to 88% ($p \leq 0.001$). In comparing rural non-intervention parishes and (rural) intervention parishes in comparable neighboring areas, we found a significantly higher proportion of newborns receiving postnatal care within 48 hours of birth—the primary OR intervention—in the intervention parishes.

Project monitoring and evaluation data in facilities (clinics and hospitals) serving the intervention parishes improved consistently in the quality of care from the project's first trimester to its final trimester for most targeted obstetric and neonatal quality of care indicators. The following changes occurred between these trimesters:

- Facility antenatal care (ANC) sessions adherent with clinical standards rose from 47% to 70% ($p \leq 0.001$).
- Facility postpartum sessions adherent with clinical standards rose from 54% to 83% ($p \leq 0.001$).
- Newborn facility visits adherent with clinical standards rose from 54% to 64% ($p = 0.01$).
- Facility deliveries receiving active management of third stage labor (AMTSL) rose from 68% to 97%.
- Facilities' full compliance with a set of 11 EONC standards rose from 13% to 50%

($p \leq 0.001$).

- TBA adherence with maternal postpartum physical examination standards as assessed by simulation or real-time observation using a structured checklist rose from 54% to 77% ($p \leq 0.001$).

Conclusions

OR findings demonstrate that in a Latin American setting with historically low coverage and poor quality early-postpartum services plus longstanding rifts between indigenous and formal health system approaches to maternal-newborn health, the OR and broader project interventions were a feasible and effective strategy for building coordinated service delivery networks that in turn contributed to significantly improved postpartum best practices and outcomes for mothers and newborns.

Recommendations

The Cotopaxi EONC network model proved to be a promising strategy for establishing a continuum of coordinated household, community, health center, and hospital services. Consideration should be given to adapting and implementing the model in settings with similar challenges and contexts. Collaboration with Ministry of Health and other partners in building such networks could help establish such practices as policy, which would likely increase the chance of sustainability and scale-up.

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For more information about the Cotopaxi EONC Project, visit http://www.urc-chs.com/project?ProjectID=8&keyword=EONC.

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Study Team

Jorge Hermida (CHS Ecuador Country Director), Kathleen Hill (CHS technical team, Bethesda office), Mario Chavez (Project Director), and Lorena Carranza (project staff)

Improving Postpartum Best Practices for Mothers and Newborns in Rural Ecuador

Introduction

Background and Setting**:** The operations research (OR) described here was conducted as part of a USAID Child Survival and Health Grants Project (CSHGP), called the Cotopaxi Essential Obstetric and Neonatal Care (EONC) project. Implemented in Ecuador's Cotopaxi province from 2009 to 2013, the project's overall goal was to develop and implement a model that could inform ongoing Ministry of Health efforts to reduce maternal and newborn mortality. The project sought to improve household maternal-newborn best practices and access to a continuum of coordinated, high-quality household, community, and facility maternal-newborn services provided within a network of traditional birth attendants (TBAs), community health workers (CHWs), health facilities, and social organizations. The project's OR arm evaluated the introduction of early home- and facility-based postpartum services for women and newborns in parallel with a social behavior change communications campaign.

To maximize the chance of sustaining results and to generate learning to inform future scale-up efforts, the project manager (the Center for Health Services or CHS) worked closely with national and provincial Ministry of Health (MOH) offices, local health centers, hospitals, TBAs, community members, and other key stakeholders to implement all project phases, including the aspects described here.

The project and OR were conducted in 21 of Cotopaxi's 38 rural parishes. Cotopaxi is in a mountainous region in the Ecuadorean Andes and is approximately 130 kilometers south of Ecuador's capital, Quito. With 384,449 inhabitants distributed among seven counties, Cotopaxi has a large rural population (67%), of which nearly a third is Ecuadorian Indian (28%) and most of which is poor (90%), with little access to and use of evidence-based, skilled, maternal-newborn health care services. The 21 project parishes were deliberately selected for equity reasons to include those with the highest burden of maternal and newborn mortality. Specific selection criteria were >40% indigenous Indian population and >50% extreme poverty.

Problem: The intra-partum and early-postpartum period (first two–three days after birth) are the highest risk period of mortality for both the mother and newborn. Despite strong international evidence showing the favorable impact on mortality and morbidity of early-postpartum best practices (household and service delivery), including home-based early-postpartum care, most mothers and newborns in Cotopaxi have not benefitted from such care or broader community behavior change strategies to increase the uptake of postpartum best practices for women and newborns. At the project's start, postpartum household best practices and facility-based postpartum and pre-discharge services were of relatively low quality. Home-based postpartum care within the first two–three days of birth was very weak with respect to both coverage and quality. Provision of a package of early community- and home-based postpartum services has been shown, in Southeast Asia, to reduce morbidity for mothers and newborns and to reduce mortality for newborns. A central objective of the OR was to generate evidence about effective, scalable implementation approaches for improving postpartum household best practices and coverage and the quality of home- and facility-based early-postpartum services.

Innovative solution (intervention): The main innovation tested to try to improve early-postpartum household practices and outcomes was a combined service delivery and social behavior change communication (SBCC) intervention implemented as part of a broader project-wide innovation to connect the traditional, community, informal childbirth health care system and its formal counterpart. The project-wide innovation created and supported a province-wide EONC network to improve antenatal, childbirth, and postpartum best practices with a focus on three

interactive sub-networks**:** 1) parish-level EONC "micro-networks" that coordinated community and primary health care providers and representatives; 2) county-level networks that coordinated community, primary, and hospital services at that level; and 3) a referral-level hospital network among hospitals in the provincial capital. At the heart of bringing the traditional maternal and newborn community/home system and the formal health system together were the parish-level micro-network teams in each of the 21 targeted parishes. The main research innovation to try improve early-postpartum best practices (household, TBA, and facility) was largely implemented within the parish micro-networks.

Intervention Design

The interventions were designed to achieve four main OR/implementation research objectives, as follows **(**Appendix 1 has specific objectives and the research questions of each from the research protocol):

1. Introduce early (within the first one–three days of birth) postpartum home-based care by trained TBAs or skilled parish health center workers. Such care includes high-quality counseling for best routine practices, assessment for and recognition of danger signs, and referral of complications seen in mothers and newborns.
2. Improve household knowledge and adherence with best practices, including danger sign recognition for mothers and newborns and prompt care-seeking or follow-through with TBA referral for maternal-newborn complications.
3. Strengthen linkages between parish health centers and TBAs in parish health center catchment areas to increase the coverage, quality, and coordination of home- and facility-based postpartum services. Relative to the last, emphasize improving referrals and counter-referrals.
4. Improve the quality of parish health center and county hospital early-postpartum services for women and newborns as measured by compliance with evidence-based standards of assessment and treatment care and referral to the county or provincial hospital when indicated for identified complications.

The OR intervention was the introduction of two, combined interventions: an early-postpartum (first one–three days after birth) home- and maternity-based service delivery intervention and an SBCC strategy. The first focused on providing high-quality counseling for routine maternal and newborn best practices (e.g., exclusive breastfeeding), assessment for and recognition of danger signs, and referral for complications identified in mothers and newborns that TBAs or lower level maternity staff could not manage. In addition to improving coverage and quality of these services, the service delivery intervention focused on strengthening linkages between TBAs and facility-based midwives, nurses and doctors to try to strengthen referral and counter-referral processes. The SBCC strategy consisted of repeatedly aired radio jingles, a weekly radio program on several local stations, and community outreach fairs. All three types of SBCC activity were designed to build knowledge and uptake of best practices for mothers and newborns, including household best practices, recognition of danger signs, and care-seeking.

The OR intervention was introduced in two phases to targeted project parishes. In the first phase (2010–2011), the project and OR intervention were introduced in seven parishes in Pujili county, the county hospital, and the tertiary provincial hospital. One intent of the first phase was to generate learning for extension to the remaining parishes in phase two. In phase two (2012–2013) the OR intervention was extended to the remaining 14 project parishes, for a total of 21.

The OR intervention also focused on building the sustainable capacity and performance of front-line parish micro-network teams to provide high-quality postpartum services for women and their newborns (home and maternity deliveries) and on implementing the SBCC activities. These teams were supported to use findings from the baseline household assessment and their own

knowledge of the local setting to identify problems and solutions to achieve better quality and coverage of antenatal and early-postpartum services at the household and maternity levels. The teams comprised community and social organization representatives, TBAs, midwives, and doctors; they met monthly to review progress and troubleshoot challenges. Quarterly observations of TBA home postpartum visit (simulated or real when possible) using a structured checklist were conducted by skilled providers during the monthly meetings to measure the quality of care provided by TBAs.

Study Design and Methods

The study design used a pre-post intervention design in which results were compared at baseline (pre-intervention) and endline (post-intervention) in intervention sites with respect to key variables related to household early-postpartum best practices and coverage and quality of early-postpartum services. Study data sources included a baseline and endline Knowledge, Practice and Capacity (KPC) household survey and project monitoring and evaluation data. Before collecting any household survey or service delivery data, a research protocol was submitted and approved by the CHS Institutional Review Board.

Household survey data and analysis methods: An experienced local research organization was contracted to conduct the baseline and endline household surveys. The surveys examined three sets of indicators (with overlap): 1) project-wide indicators; 2) project OR indicators; and 3) USAID Rapid CATCH Indicators (except malaria and anthropometric data, which were excluded with USAID permission). The KPC household survey tool incorporated and adapted items from three independent survey tools: 1) KPC Rapid Core Assessment Tool on Child Health (CATCH) 2008 (Version October 3, 2008); 2) USAID Health Care Improvement (HCI) project Household Survey Tool of Mothers with Children 0–23 Months Old (2010), originally developed for HCI maternal-newborn projects in Mali and Afghanistan; and 3) the Knowledge, Attitudes, and Practices (KAP) Survey on Maternal and Neonatal Health (November 22, 2010 Version, CHS-Ecuador). The CHS team developed and pre-tested OR-specific indicators for inclusion in the final household survey questionnaire. The questionnaire and survey results are in Appendices 2 and 3.

In line with the project's focus on rural parishes, the survey target population was mothers with a (live) child under 24 months of age living in rural parishes in Cotopaxi province. A sample of rural parishes from Cotopaxi counties was identified; urban parishes in the capital, Latacunga, were excluded from the sample. As is common with demographic and health surveys, the survey sample sizes (baseline and endline) were designed to be representative of Cotopaxi. Using the following formula, a total sample of 462 household at baseline and 412 at endline were randomly selected from a census-based sample of sectors in 30 parishes in the seven counties by applying the following formula to produce representation of the area.

$$nz^2(pq) \div (d^2(n-1)+ z^2(pq))$$

Where n = number of children 0–23 months of age per zone (using the 2009 Ecaudoran National Institute of Statistics and Census (INEC, acronym in Spanish) estimates), z =1.96 given a confidence limit (α error) of 0.05, p = proportion of malnourished children, q =100%-p, and d = maximum admissible error.

The sample was selected using a three-stage sampling process in which the parishes from each county were selected, oversampling for the primary intervention country, Pujilí; these included all 21 parishes in which all components of the intervention were implemented and neighboring parishes (which may have been exposed to the SBCC intervention). Once the parishes were selected, census-based sectors were selected within each parish, and then all households with a mother of a child under 24 months in each selected sector were selected. (Most households had only one eligible woman.) The original sampling frame is in Appendix 4. To ensure financial and logistical feasibility, the sampling frame was revised to eliminate parishes with fewer than four

households; the same number of households from other sample parishes in the same county were added to attain the planned sample size.

Key indicators to assess the OR household survey data were analyzed by Chi-square tests comparing pre- and post-incidence using SPSS for Windows version 20. Three types of comparisons were analyzed: 1) total sample (pre-post); 2) intervention compared to non-intervention counties (relative baseline-to-endline change); and 3) intervention compared to non-intervention counties excluding the more "urban" townships (relative baseline-to-endline change). Pearson 2-tailed significance levels are presented except where any individual cell in a cross-tabulation contains ≤5 observations, in which case Fisher's exact 2-tailed significance levels are presented.

Project monitoring data and analysis methods: Project staff worked closely with TBAs, community organizations, provincial MOH offices, parish health centers, county and provincial hospitals, and other partners to support and strengthen a coordinated provincial, county, and parish maternal and newborn mortality surveillance system linked to local and provincial levels to facilitate local review and action.

Project monitoring and evaluation data were extracted from several sources:

1. Access and Coverage Indicators: TBAs recorded their service provision on forms developed for the project; these forms were submitted monthly to the parish skilled provider (nurse, midwife, or doctor) charged with review and collection of these forms during the parish micro-network meetings. Data on referrals and their outcomes were collected monthly or quarterly (depending on the indicator; for example, data on referral and use of services for complications were collected quarterly as the event incidence is relatively rare) from retained project referral slips from the health facilities. The percentage of TBAs providing home-based, postpartum and postnatal visits within two days of delivery was calculated semi-annually. Facility-based access and coverage data were collected from health center and hospital registers for indicators related to birth deliveries and discharges at facilities, as well as postpartum visits.
2. Knowledge Indicators: TBA knowledge (of danger signs, best practices, etc.) was assessed quarterly by interview.
3. Quality of Care Indicators:
    a. Quality of TBA services was assessed through quarterly observation of TBA simulated or live postpartum home visits using a structured checklist. Observation of live care by TBAs was done during periodic household postpartum visits jointly conducted by a skilled provider and a TBA member of the local micro-network team. These home visits (offering antenatal and postpartum care) provided important mentoring opportunities for both skilled providers and TBAs to learn from each other (TBAs learned evidence-based best clinical practices and skilled providers learned about cultural childbirth and postpartum preferences and values).
    b. Quality of facility-based care was initially assessed by an external observer and later by review of monthly hospital or clinic patient medical records and registers.

Key monitoring and evaluation indicators were analyzed by Chi-square tests comparing the first (pre-) and last (post-) trimester (three months) or the first and last measured incidence (the analyses presented specify which) and by regression curve estimation using SPSS for Windows version 20. Outcomes for which data were provided cumulatively for each month or trimester per calendar year were disaggregated to provide monthly or quarterly estimates; rather than simply dividing the annual estimated number of deliveries by 12, which could result in incidence >100%, provincial INEC data were used to estimate the proportion of deliveries per month, thus producing more accurate rate denominators. Pearson 2-tailed significance levels are presented except

where any individual cell in a cross-tabulation contains ≤5 observations, in which case Fisher's exact 2-tailed significance levels are presented

Findings

Composition and comparability of Baseline and Endline Household Samples:

Table 1 summarizes the proportional distribution of cases from individual Cotopaxi counties in the baseline (n=462) versus the endline (n=412) samples. It shows that 1) Latacunga county, with a relatively large proportion of urban parishes, is overrepresented in the endline survey compared with the baseline survey (43% versus 25%) and 2) Pujili county, which had the longest exposure to project intervention, is, unfortunately, relatively underrepresented in the endline survey sample (21% versus 33%). The lack of consistency with respect to individual county representation stemmed in part from the erroneous inclusion of La Maná county in the baseline survey.

Table 1. Distribution of Counties in Survey Samples

Counties	Cases: Baseline	% Baseline	Cases: Endline	% Endline
LATACUNGA	116	25.0	179	43.0
LA MANÁ	47	10.0	0	0
PANGUA	25	5.4	21	5.1
PUJILÍ	153	33.0	88	21.4
SALCEDO	65	14.0	66	16,0
SAQUISILÍ	30	6.5	23	5.6
SIGCHOS	26	5.6	35	8.5
Total Sample Size	**462**		**412**	**100.0**

Table 2 summarizes the composition of the baseline (n=462) and endline (n=412) household survey samples. The baseline and endline total sample composition is comparable with respect to most characteristics. However, the methodological limitations of the household survey sampling discussed above contributed to some socio-demographic differences between the baseline and endline survey participants. In particular, the endline survey included a larger proportion of indigenous participants, whose main occupation was agriculture upon land under their ownership (Table 2, both $p \leq 0.001$); these discrepancies were observed in all analyses (total sample and sub-samples). Although not statistically significant, more women in the endline than baseline survey were married (and fewer were single).

Table 2: Baseline and Endline Household Survey Composition: Total Sample

		Baseline or Endline Survey						Post vs. Pre
		Baseline		Endline		Total		
		Column N (%)	Count	Column N (%)	Count	Column N (%)	Count	*p*
Age Group	15–19	16 (50)	76	14 (30)	59	15 (40)	135	0.768
	20–29	49 (10)	227	51(90)	214	50 (50)	441	
	30–39	27 (90)	129	27 (90)	115	27 (90)	244	
	≥40	6 (50)	30	5 (80)	24	6 (20)	54	
Education	None/Primary	56.50	261	54.40	224	55.50	485	0.611
	Secondary	35.30	163	38.30	158	36.70	321	
	College	8.20	38	7.30	30	7.80	68	
Ethnicity	White	5.80	27	0.20	1	3.20	28	**≤.001**
	Mestiza	63.20	292	57.50	237	60.50	529	
	Indigenous	27.50	127	40.80	168	33.80	295	
	Other	3.50	16	1.50	6	2.50	22	
Profession	Housewife	53.00	245	29.90	123	42.10	368	**≤.001**
	Agriculture with own property	21.90	101	39.60	163	30.20	264	
	Other	25.10	116	30.60	126	27.70	242	
	No response	0.00	0	0.00	0	0.00	0	
Marital Status	Single	19.30	89	15.80	65	17.60	154	0.125
	Married	54.30	251	60.90	251	57.40	502	
	Live Together	23.40	108	21.80	90	22.70	198	
	Other	3.0	14	1.50	6	2.30	20	
	TOTAL SAMPLE SIZE		**462**		**412**			

Table 3 summarizes the social and demographic composition of the intervention versus non-intervention parishes, in rural parishes only, in the baseline and endline household surveys. The results for only rural parishes are presented because while the project intervention was implemented only in rural parishes, the household survey erroneously included some urban parishes. Because the 21 participating rural project parishes were deliberately selected based on equity criteria (>40% indigenous Indian population and >50% extreme poverty), it is not surprising that the intervention rural parishes had a higher proportion of indigenous women at both baseline (6% versus 53.5%) and endline (14.5% versus 70.8%) than the non-intervention rural parishes (Table 3). Likewise, women from non-intervention, more-advantaged rural parishes reported higher rates of institutional delivery than women from intervention parishes at both baseline (89% versus 52%) and endline (85.5% versus 49.7%).

Table 3: Baseline and Endline Household Survey Comparison of Key Outcome Indicators: Intervention and Neighboring Non-intervention Parishes, Rural Parishes Only

		Non-intervention						Intervention						
		Baseline or Endline Survey						Baseline or Endline survey						□
		Baseline		Endline		Total		Baseline		Endline		Total		Post vs Pre
		%	n	%	n	%	n	%	n	%	n	%	n	*p*
Age Group	15–19	19.0 %	19	23.7 %	18	21.0 %	37	15.1 %	24	11.2 %	18	13.1 %	42	0.557
	20–29	56.0 %	56	50.0 %	38	53.4 %	94	37.7 %	60	49.1 %	79	43.4 %	139	
	30–39	22.0 %	22	25.0 %	19	23.3 %	41	36.5 %	58	32.9 %	53	34.7 %	111	
	≥40	3.0 %	3	1.3 %	1	2.3%	4	10.7 %	17	6.8 %	11	8.8 %	28	
Education	None/Primary	37.0 %	37	47.4 %	36	41.5 %	73	69.8 %	111	70.2 %	113	70.0 %	224	0.002
	Secondary	48.0 %	48	50.0 %	38	48.9 %	86	25.2 %	40	28.6 %	46	26.9 %	86	
	College	15.0 %	15	2.6 %	2	9.7%	17	5.0%	8	1.2 %	2	3.1 %	10	
Ethnicity	White	7.0 %	7	0.0 %	0	4.0%	7	4.4%	7	.6%	1	2.5 %	8	0.000
	Mestiza	84.0 %	84	82.9 %	63	83.5 %	147	40.3 %	64	28.0 %	45	34.1 %	109	
	Indigenous	6.0 %	6	14.5 %	11	9.7%	17	53.5 %	85	70.8 %	114	62.2 %	199	
	Other	3.0 %	3	2.6 %	2	2.8%	5	1.9%	3	.6%	1	1.3 %	4	
Profession	Housewife	64.0 %	64	44.7 %	34	55.7 %	98	42.1 %	67	11.8 %	19	26.9 %	86	0.000
	Agriculture with own property	5.0 %	5	9.2 %	7	6.8%	12	39.0 %	62	73.9 %	119	56.6 %	181	
	Other	31.0 %	31	46.1 %	35	37.5 %	66	18.9 %	30	14.3 %	23	16.6 %	53	
	No response	0.0 %	0	0.0 %	0	0.0%	0	0.0%	0	0.0 %	0	0.0 %	0	
Marital Status	Single	24.0 %	24	15.8 %	12	20.5 %	36	19.5 %	31	16.8 %	27	18.1 %	58	0.271
	Married	44.0 %	44	61.8 %	47	51.7 %	91	64.8 %	103	65.2 %	105	65.0 %	208	
	Live Together	28.0 %	28	19.7 %	15	24.4 %	43	11.9 %	19	16.1 %	26	14.1 %	45	
	Other	4.0 %	4	2.6 %	2	3.4%	6	3.8%	6	1.9 %	3	2.8 %	9	

Relative to non-intervention rural parishes, intervention parishes in comparable neighboring areas had a significant increase in the proportion of newborns receiving postnatal care within 48 hours of birth—the primary OR intervention: The proportion rose 20 percentage points for the former and 28.4 for the latter (Table 4).

Table 4: Baseline and Endline Household Survey Comparison of Delivery and Postpartum Care Indicators: Intervention Compared with Neighboring, Non-intervention Parishes, Rural Parishes Only

		Non-intervention						Intervention						
		Baseline or Endline Survey						Baseline or Endline Survey						Post vs. Pre
		Baseline		Endline		Total		Baseline		Endline		Total		
		%	n	%	n	%	n	%	n	%	n	%	n	*p*
Institutional delivery	No	11.0 %	11	14.5 %	11	12.5 %	22	47.8 %	76	50.3 %	81	49.1 %	157	.226
	Yes	89.0 %	89	85.5 %	65	87.5 %	154	52.2 %	83	49.7 %	80	50.9 %	163	
Institutional delivery with an SBA (doctor, nurse or midwife)	No	2.2%	2	0.0%	0	1.3%	2	2.4%	2	0.0%	0	1.2%	2	.128
	Yes	97.8 %	87	100.0 %	65	98.7 %	152	97.6 %	81	100. 0%	80	98.8 %	161	
Home births attended by a TBA	No	63.6 %	7	72.7 %	8	68.2 %	15	39.5 %	30	45.7 %	37	42.7 %	67	.392
	Yes	36.4 %	4	27.3 %	3	31.8 %	7	60.5 %	46	54.3 %	44	57.3 %	90	
Post-partum visit within first 2 days of birth	No	30.0 %	30	10.0 %	5	23.3 %	35	47.5 %	75	19.1 %	18	36.9 %	93	**≤.001**
	Yes	70.0 %	70	90.0 %	45	76.7 %	115	52.5 %	83	80.9 %	76	63.1 %	159	

Note: SBA = skilled birth attendant.

A similar trend is observed in comparing baseline and endline results in the total sample (Table 5), where the proportion of postpartum/ postnatal visits within two days of birth rose from 63% to 88% (p≤0.001). While the proportion of newborns receiving postnatal care within 48 hours of birth in the non-intervention group rose from 70% to 90% between the baseline and endline surveys (a 28.6% increase), the proportion rose 52.5% to 81% (a 54% increase) in intervention parishes (p≤0.001), nearly double the increase in the non-intervention group.

Table 5: Baseline and Endline Household Survey: Comparison of Delivery and Postpartum Care Indicators, Total Sample

		Baseline or Endline Survey						Post vs. Pre
		Baseline		Endline		Total		
		%	n	%	n	%	n	p
Institutional delivery	No	26.0	120	30.8	127	28.3	247	0.112
	Yes	74.0	342	69.2	285	71.7	627	
Institutional delivery with an SBA (doctor, nurse or midwife)	No	2.6	9	0	0	1.4	9	0.005
	Yes	97.4	333	100	285	98.6	618	
Home births attended by TBA	No	42.5	51	44.1	56	43.3	107	0.8
	Yes	57.5	69	55.9	71	56.7	140	
Post-partum visit within first 2 days of birth	No	36.7	169	11.6	30	27.7	199	**≤0.001**
	Yes	63.3	291	88.4	228	72.3	519	

Knowledge, Best Practices, and Satisfaction

There were significant and large improvements for the total sample between the baseline and endline survey results with respect to 1) knowledge, best practices, and satisfaction (Table 6) and 2) the intervention and non-intervention parishes (limited to rural areas: Table 7). In the total sample the proportion of mothers increased significantly from baseline to endline with respect to (All results: $p \leq 0.001$):

- Exclusive breastfeeding for six months (from 39% to 51%),
- Mothers who could name two newborn danger signs (75% to 97%),
- Mothers who could name two postpartum maternal danger signs (66% to 93%),
- Mothers making at least two birth preparations before the birth of their youngest child (57% to 73%),
- Mothers knowing at least two birth preparedness steps (68% to 81%), and
- Mothers knowing at least two danger signs during labor/delivery (54% to 88%).

In the pre-post comparison of the total sample (Table 6), satisfaction with institutional care, as measured by the proportion of mothers who would urge a friend to deliver in the facility where she had delivered, rose from 65% to 97% ($p \leq 0.001$).

Table 6: Knowledge, Best Practices, and Satisfaction: Baseline and Endline, Total Sample

		Baseline or Endline Survey						Post vs. Pre
		Baseline		Endline		Total		
		%	n	%	n	%	n	*p*
Mothers report breastfeeding (BF) within first hour after birth	No	41.1%	190	44.7%	184	42.8%	374	0.292
	Yes	58.9%	272	55.3%	228	57.2%	500	
Mothers who did not give anything other than breast milk until age 6 months	No	60.8%	281	49.0%	202	55.3%	483	≤0.001
	Yes	39.2%	181	51.0%	210	44.7%	391	
Mothers who can name two pregnancy danger signs	No	35.1%	162	30.6%	126	33.0%	288	0.159
	Yes	64.9%	300	69.4%	286	67.0%	586	
Mothers who can name two newborn danger signs	No	24.7%	114	3.2%	13	14.5%	127	≤0.001
	Yes	75.3%	348	96.8%	399	85.5%	747	
Mothers who can name two postpartum maternal danger signs	No	34.2%	158	6.8%	28	21.3%	186	≤0.001
	Yes	65.8%	304	93.2%	384	78.7%	688	
Mothers making at least 2 birth preparations before birth of their youngest child	No	43.2%	199	27.4%	113	35.7%	312	≤0.001
	Yes	56.8%	262	72.6%	299	64.3%	561	
Mothers knows at least 2 birth preparedness steps	No	32.3%	149	19.4%	80	26.2%	229	≤0.001
	Yes	67.7%	313	80.6%	332	73.8%	645	
Mothers knows at least 2 danger signs during labor/delivery	No	45.7%	211	11.7%	48	29.6%	259	≤0.001
	Yes	54.3%	251	88.3%	364	70.4%	615	
Mothers would recommend a friend to deliver in the facility where she delivered	No	35.3%	163	2.5%	7	22.8%	170	≤0.001
	Yes	64.7%	299	97.5%	278	77.2%	577	

In the comparison of intervention and non-intervention parishes limited to the rural sample (Table 7), both groups' endline satisfaction rose to 100%; however, at baseline only 40% of those in intervention parishes—compared with 80% in the non-intervention parishes—would urge a friend to deliver in the facility where she had delivered ($p \leq 0.001$).

Table 7: Knowledge, Best Practices, and Satisfaction: Baseline and Endline in Intervention and Non-intervention Neighboring Parishes, Rural Parishes Only

		Non-intervention						Intervention						
		Baseline or Endline Survey						Baseline or Endline Survey						□
		Baseline		Endline		Total		Baseline		Endline		Total		Post vs. Pre
		%	n	%	n	%	n	%	n	%	n	%	n	*p*
Mothers report BF within first hour after birth	No	42.0 %	42	38.2 %	29	40.3 %	71	42.1 %	67	44.1 %	71	43.1 %	138	0.980
	Yes	58.0 %	58	61.8 %	47	59.7 %	105	57.9 %	92	55.9 %	90	56.9 %	182	
Mothers who did not give anything other than breast milk until age 6 months	No	69.0 %	69	56.6 %	43	63.6 %	112	60.4 %	96	51.6 %	83	55.9 %	179	0.017
	Yes	31.0 %	31	43.4 %	33	36.4 %	64	39.6 %	63	48.4 %	78	44.1 %	141	
Mothers who can name two pregnancy danger signs	No	33.0 %	33	27.6 %	21	30.7 %	54	45.3 %	72	37.9 %	61	41.6 %	133	0.173
	Yes	67.0 %	67	72.4 %	55	69.3 %	122	54.7 %	87	62.1 %	100	58.4 %	187	
Mothers who can name two newborn danger signs	No	25.0 %	25	2.6%	2	15.3 %	27	32.1 %	51	5.0%	8	18.4 %	59	≤.001
	Yes	75.0 %	75	97.4 %	74	84.7 %	149	67.9 %	108	95.0 %	153	81.6 %	261	
Mothers who can name two post-partum maternal danger signs	No	36.0 %	36	7.9%	6	23.9 %	42	37.7 %	60	9.3%	15	23.4 %	75	≤0.001
	Yes	64.0 %	64	92.1 %	70	76.1 %	134	62.3 %	99	90.7 %	146	76.6 %	245	
Mothers making at least 2 birth preparations before birth of their youngest child	No	42.0 %	42	25.0 %	19	34.7 %	61	47.8 %	76	34.8 %	56	41.3 %	132	≤0.001
	Yes	58.0 %	58	75.0 %	57	65.3 %	115	52.2 %	83	65.2 %	105	58.8 %	188	
Mothers knows at least 2 birth preparedness steps	No	40.0 %	40	14.5 %	11	29.0 %	51	35.2 %	56	26.7 %	43	30.9 %	99	≤0.001
	Yes	60.0 %	60	85.5 %	65	71.0 %	125	64.8 %	103	73.3 %	118	69.1 %	221	
Mothers knows at least 2 danger signs during labor/ delivery	No	52.0 %	52	21.1 %	16	38.6 %	68	52.2 %	83	14.9 %	24	33.4 %	107	≤0.001
	Yes	48.0 %	48	78.9 %	60	61.4 %	108	47.8 %	76	85.1 %	137	66.6 %	213	
Mothers would recom-mend a friend to deliver in the facility where she delivered	No	20.0 %	20	0.0%	0	12.1 %	20	59.7 %	95	0.0%	0	39.7 %	95	≤.001
	Yes	80.0 %	80	100. 0%	65	87.9 %	145	40.3 %	64	100. 0%	80	60.3 %	144	

The statistically significant increase in the proxy measure of patient satisfaction in both the pre- and post-intervention total sample and the intervention and non-intervention neighboring comparison group (rural parishes only) may reflect the project improvements in clinical quality and in client-centeredness and quality of care relative to cultural sensitivity.

Some of the results from comparing intervention and non-intervention parishes (rural sample only; Table 7) are consistent with the total sample results; the rural intervention parishes experienced significant relative improvements above and beyond the neighboring rural non-intervention parishes for some key indicators of knowledge and best practices, particularly with respect to project focus areas of delivery: postpartum and newborn care. At baseline, 68% of mothers in the intervention group could name two newborn danger signs, compared with 95% at endline (rural sample only); 75% and 97% of intervention and comparison group mothers could do so at baseline ($p \leq 0.001$). About 48% of women in both groups knew two danger signs of labor and delivery, and both groups showed substantial improvement in this knowledge, increasing to 79% in the non-intervention group and 85% in the intervention group ($p \leq 0.001$).

Project Monitoring and Evaluation Results

TBA Knowledge: The monitoring and evaluation data for the 21 intervention parishes show consistent improvements in TBA knowledge between the first and last project implementation trimesters. Table 8 shows the following improvements from the first intervention trimester to the last (All these differences were highly significant ($p \leq 0.001$):

- TBAs who could cite at least two pregnancy danger signs rose from 94% to 100%,
- Those who could cite at least two birth preparedness actions rose from 82% to 98%,
- Those who could cite at least two postpartum danger signs for a mother rose from 91% to 100%,
- Those who could cite at least two newborn danger signs rose from 87% to 98%, and
- Those who could cite at least two newborn best practices rose from 91% to100%.

In addition, TBAs who reported having visited the health center and having contacted a skilled provider in the last trimester rose from 56%, at the start of the project, to 96% at the final trimester. This may indicate that the project effectively improved contact and communication between TBAs and facilities/providers, an important first step to improving referrals from the community to the facility level.

Facility Services Project Monitoring Data: Project monitoring and evaluation data for the clinics and hospitals serving the intervention parishes (Table 8) show consistent improvements in quality of care from the first to last trimester for all but postpartum hemorrhage and newborn sepsis case-based indicators; however, these two indicators include very few cases, precluding fair comparison. The following changes occurred between the first and final trimesters:

- ANC sessions adhering to clinical standards rose from 47% to 70% ($p \leq 0.001$),
- Facility postpartum sessions adherent with clinical standards rose from 54% to 83% ($p \leq 0.001$),
- Newborn facility visits adherent with clinical standards rose from 54% and 64% ($p = 0.01$),
- Facility deliveries receiving AMTSL increased from 68% to 97%
- Facilities fully complying with a full set of 11 ENC standards rose from 13% to 50% $p \leq 0.001$), and
- TBA adherence with maternal postpartum physical examination standards as assessed by simulation or real-time observation using a structured checklist rose from 54% to 77% ($p \leq 0.001$).

Table 8: Monitoring and Evaluation: Last versus First Trimester or Year: Key Quality of Care and impact Outcome Indicators: Intervention Parishes (Weighted by Number of Observations in the Time Period)

	First Trimester		Last Trimester		*p*
	%	n	%	n	2-tailed
Knowledge and TBA-reported Linkages with Facility Providers					
	First Year		Last Year		*p*
TBAs can cite at least 2 pregnancy danger signs	93.6	313	100.0	49	≤0.001
TBAs can cite at least 2 birth preparedness actions	81.6	320	98.0	49	≤0.001
TBAs can cite at least 2 postpartum danger signs for mother	91.0	312	100.0	49	≤0.001
TBAs can cite at least 2 newborn danger signs	86.5	311	98.0	49	≤0.001
TBAs can cite at least 2 newborn best practices	90.7	312	100.0	49	≤0.001
TBAs who report having visited the closest health facility in the last trimester	56	14/25	92	26/28	
Facility Quality of Care					
Facility ANC sessions adherent with clinical standards	46.6	367	70.2	944	≤0.001
Facility postpartum sessions adherent with clinical standards	54.1	98	82.5	200	≤0.001
Newborn facility visits adherent with clinical standards	54.4	103	64.2	279	00.013
Facility deliveries benefitting from AMTSL	68.4	57	96.6	147	≤0.001
Facility premature births for which ACS administered	66.7	3	92.6	27	0.16
Facility PROM with evidence-based management	0.0	1	100.0	2	NA
Facility compliance with ENC standards	13.2	38	49.7	147	≤0.001
Facility compliance with PPH standards	100.0	2	85.7	7	NA
Facility compliance with newborn sepsis case management standards	100.0	5	66.7	3	NA
TBA adherence with maternal postpartum physical examination standards (observation simulation or real-time)	54.4	81	77.4	29	≤0.001
Percentage Impact					
	2010		**2011**		**Decrease**
Neonatal mortality rate (national INES data)	**8.2/1000**		**7.55/1000**		**8.60%**

Note: ACS = Antenatal Corticosteroids; PROM = Premature Rupture of Membranes; ENC = Essential Newborn Care; PPH = Postpartum Hemorrhage

Impact and Policy Environment Results: Project impact results were assessed using national vital statistics. As shown in Table 8, available national INEC data demonstrate an 8.6% decrease in Cotopaxi neonatal mortality rate: from 8.2 neonatal deaths per 1000 live births in the project's first year, 2010, to 7.55 in 2011. The project was implemented in close collaboration with national, provincial, and parish MOH authorities and has garnered increasing attention by the national and provincial MOHs over the life of the project, with particularly strong attention in the last year or two of project implementation. Many of the project tools have been formally adopted by Cotopaxi provincial MOH authorities: tools for training, reporting, and supporting work with TBAs, tools to improve the quality of facility-based care, tools for clinical EONC training of facility-based staff, tools for mortality surveillance, and many others. In the

final months of the project's fourth and final year, the national MOH has issued a new national policy formally encoding the project's network EONC model into the national MOH structure through the national maternal and newborn mortality reduction strategy. The (national) MOH has also issued a dedicated budget and is developing a concrete operational plan for its offices to assume and expand the EONC network model to the entire country, with close support by the CHS CSHGP team during the initial period of transition from project to MOH management.

Discussion

The OR intervention was associated with statistically significant positive results with respect to research objectives two (household best practices/ knowledge) and four (improved quality of facility services). It was also fairly successful in achieving research objective one related to the introduction of high-quality early-postpartum home- and facility-based care (within the first three days of birth) by trained TBAs and skilled providers. The statistically significant increases in postnatal care within 48 hours in the intervention and non-intervention parishes limited to the rural sample (Table 4) and the pre- and post-intervention baseline and endline results in the total sample (Table 5) indicate that the project achieved its primary OR objective to significantly increase the proportion of newborns receiving postnatal care within 48 hours of birth. This is a striking result, particularly in considering the relative marginalization of the intervention group that was deliberately targeted as part of an equity strategy. This accomplishment seems to be, in large part, attributable to improving the coverage and quality of postpartum visits to newborns delivered in facilities. While most rural non-intervention parish deliveries occurred in facilities (due to known higher socio-economic status of these parishes) and only slightly more than half did so in the rural intervention parishes, relatively more intervention group deliveries in facilities received an institutional postpartum visit within the first two days of birth ($p \leq 0.001$). Less impressive gains in early-postpartum services were observed for home births and home-based early-postpartum care. Due to the proportionally lower representation of the phase-one Pujili county in the endline household survey sample, study results may underestimate the true effect of the project intervention on home-based postpartum care and postpartum services for home births.

The project was partially successful in achieving research objective three to strengthen linkages between parish health centers and TBAs in parish health center catchment areas. The objective sought to increase the coverage, quality, and coordination of home- and facility-based postpartum services with an emphasis on improving referrals, which are an important and complex component of improving maternal health outcomes. A study limitation was inconsistent data collection on TBA referrals of mothers and newborns for postpartum complications and on follow-through on TBA referrals at the facility level. The project did not achieve hoped-for documentation and consistent referral protocols, which weakened the OR study's ability to evaluate the impact of the project intervention on referral processes. Nevertheless, the project was able to achieve the initial important steps of strengthening linkages between TBAs and health center/ hospital staff. The data management challenges related to tracking referrals across distinct health system levels proved formidable; a longer and perhaps different implementation approach would probably be needed to strengthen consistent referral processes.

However, qualitative interviews with providers and TBAs during the final evaluation provide anecdotal information suggesting that the frequency and quality of communications did increase between TBAs and facility providers during the project. Even anecdotally reported communications between these two types of providers would have been striking five years ago. The change presents an important project-created foundation for building improved referral/counter-referral processes. It is likely that the recently mandated MOH policy of enforcing respect for indigenous traditions, including traditional health care practices, contributed to improved linkages between community members, TBAs, and facility providers. For example, the

recent MOH distribution of bilingual (Spanish-Quechua) indigenous "primary health care agents" (TAPs in Spanish) in all parishes has helped to further break down historic barriers between facilities and communities and has proved to be very timely for the project.

The statistically significant increases in the proxy measure of patient satisfaction ("Would you recommend the maternity where you last delivered to a friend?") in both the pre- and post-intervention total samples and in the intervention and non-intervention groups limited to rural parishes likely reflect both project-stimulated improvements in clinical quality of care and in improved client-centeredness and culturally sensitive care. These improvements likely result from the regular interactions between communities, TBAs, and health center providers during the monthly parish micro-network meetings. Indeed, the project was able to build on many years of preceding MOH and partner efforts (including by CHS) to improve responsiveness of facility childbirth services to cultural preferences among indigenous populations (e.g., delivering in the upright position with birth companion).

While the project inputs were minimal (training, SBCC materials, and donated media spots and messages), it activities covered an enormous range. These activities produced the project outputs and outcomes presented in the results section, including a substantial reduction in neonatal mortality rates between the year prior to and the first year of intervention implementation (Table 7). The 8.6% decline in mortality from the baseline rate in 2010 to 2011, the first year of project implementation, represents a substantial decline in a short period and suggests that the project's strong focus on the very high mortality intra- and early-postpartum period contributed to the measured decline in neonatal mortality in Cotopaxi during the early project implementation. National INEC mortality rates for 2012 are expected to be published in early 2014, and it will be important to track INEC-reported Cotopaxi maternal and newborn mortality rates for 2012 and 2013 to further assess the impact of the Cotopaxi CSHGP EONC network model on mortality rates. The fact that the project was conducted in 21 of the most highly marginalized and vulnerable parishes in the province (one of Ecuador's most vulnerable provinces), where improvements are likely quite difficult but was able to achieve many statistically significant improvements (in pre- and post-intervention sites and in intervention versus non-intervention comparison sites with respect to key OR variables) suggests that the implementation strategy, including the specific equity approach, was very successful overall in meeting project research objectives. Perhaps not surprisingly given the overall positive quantitative results, the project has had and continues to have a substantial effect on the national and provincial policy environment, as described in the results section: The creation of a national policy codifying the key project EONC network model and the evolving implementation plan are promising steps.

The study has several limitations. In particular, there are limitations related to household sampling methodology and the observed differences between the baseline and endline household survey samples (described under the results section) that weaken the overall power of the results. As a result of methodological sampling limitations, significant differences in ethnicity and profession were observed between the baseline and endline samples, limiting the power of the results. The baseline and endline samples had a similar representation of counties in which the full intervention (Pujilí, Salcedo, Saquisilí, and Sigcos) was implemented (baseline 61%, endline 58%); however neighboring counties may have also been exposed to the SBCC component. However, the smaller proportion of the endline survey conducted in Pujilí (baseline 33%, endline 21%, $p \leq 0.001$), the county with the longest intervention implementation, likely underestimated the project effect: It is likely that a greater effect would have been observed where the intervention had been in place longest.

Unfortunately, the smaller proportional representation of Pujili county in the endline household survey sample makes it difficult to assess implementation strength by comparing results from phase one implementation parishes (Pujili county) and those of phase two. Upon review of the

results of this OR report, USAID and CHS may decide that the differences in baseline and endline sample merits statistical control through regression techniques and/or sample weighting to adjust for these differences. In future studies, it will be advisable to have an independent expert review the sample selected before implementing the household survey to ensure adherence to the terms of the contract and sample similarity.

The lower-than-expected increase in adherence with ENC norms is likely due to a monitoring peculiarity with respect to tracking adherence with these norms. Under the project monitoring strategy, reviewed charts had to demonstrate full compliance with all 11 MOH ENC standards to be counted as "adherent with ENC norms." However, a specific brand of antibiotic recommended in the national ENC ocular prevention guidelines has been unavailable in many facilities for many years. While suitable substitutes have been available and used in many facilities, many clinics reported non-compliance with all ENC norms if the national "brand" antibiotic was not used, while some clinics counted the use of substitutes. Thus, the monitoring and evaluation estimates of compliance with ENC care presented here likely underestimates the acceptable compliance with ENC norms.

Conclusions, Recommendations, and Use

The OR results demonstrate that in a Latin America setting with historically low coverage and quality of early-postpartum services and longstanding rifts between indigenous and formal health system approaches to maternal-newborn health, the OR and broader project interventions proved to be a feasible and effective implementation strategy for building coordinated service delivery networks that in turn contributed to significantly improved postpartum best practices and outcomes for mothers and newborns.

The ongoing close collaboration between 1) project staff and 2) national and provincial Ministry of Health staff and other partners in building the EONC networks in Cotopaxi was undoubtedly essential for incorporating the project EONC model into formal policy in such a short time. Furthermore, the fact that the project was able to achieve significant results in a relatively short period in highly vulnerable parishes suggests that the OR and broader project implementation model may merit adaptation and implementation in settings with similar maternal newborn challenges to those of Ecuador's Cotopaxi province.

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Appendices

Appendix 1: Final Research Protocol (attachment)

Specific Research Questions by Study Protocol:

Objective 1:

- Is the project able to introduce and achieve improved coverage of facility- and home-based earlypost-partum services for recently delivered women and their newborns in targeted
- parishes in the Cotopaxi province?
- Is the project able to improve the quality of home-based post-partum services as measured by demonstrated TBA competence for standards-based routine counseling,danger sign/complication recognition, adherence with referral standards (and potentially adherence with home-based neonatal sepsis treatment standards)?
- Is the project able to achieve TBA competence for basic clinical assessment skills for recognition of complications in recently-delivered women and their newborns?

Objective 2:

- Is the project able to demonstrate improved self-reported household post-partum maternal newborn best practices, including self-reported routine practices (e.g. exclusive breastfeeding), knowledge of danger signs, appropriate care seeking, and adherence with referral recommendations among parents of children < age 2 ?

Objective 3:

- Is the project able to demonstrate increased incidence of appropriate TBA referrals and family adherence with referral recommendations by TBA's or skilled providers providing home care?
- Is the project able to demonstrate improved linkages between TBA's and parish health centers as measured by increased communication/contact between TBA's and parish health center staff, increased referrals to parish health center by TBA's, and increased frequency of supportive supervision of TBA's by parish health center staff?

Objective 4:

- Is the project able to demonstrate improved quality of parish health center early-postpartum services (routine and complications care) as measured by compliance with evidence-based standards and measured patient outcomes in participating facilities

Annex 2: Household Survey Questionnaire (See KPC Report)

Annex 3: Household Survey Results (See KPC Report)

Appendix 4: Original and Revised Baseline and End line Sampling Frame

Original				Revised		
COUNTY	**PARISH**	**SAMPLE n**	**NUMBER OF SECTORS**	**PARISH**	**SAMPLE n**	**NUMBER OF SECTORS**
Latacunga	Latacunga (periferia)	38	8	40	8	
	Aláquez	6	1	6	1	
	Belisario Quevedo	7	1	7	1	
	Guaytacama	10	2	10	2	
	Joseguango Bajo	2	1			
	Mulaló	9	2	9	2	
	11 de Noviembre	2	1			
	Poaló	7	1	7	1	
	San Juan de Pastocalle	13	2	14	2	
	Tanicuchí	11	2	12	2	
	Toacaso	9	2	9	2	
Total		114	23	114	21	
La Maná	La Maná	37	7	40	7	
	El Carmen					
	Guasaganda	5	1	5	1	
	Pucayacu	3	1			
Total		45	9	45	8	
Pangua	El Corazón	8	2	9	2	
	Moraspungo	14	2	16	2	
	Pinllopata	1	1			
	Ramón Campaña	2	1			
Total		25	24	25	20	
Pujilí	Pujilí	37	7	37	7	
	Angamarca	19	4	19	4	
	Guangaje	19	4	19	4	
	La Victoria	19	4	19	4	
	Pilaló	19	4	19	4	
	Tingo	19	4	19	4	
	Zumbahua	19	4	19	4	
Total		151	31	151	31	
Salcedo	San Miguel de Salcedo	37	7	41	7	
	Antonio José Holguín	3	1			
	Cusubamba	7	1	8	1	
	Mulalillo	7	1	8	1	
	Mulliquindil	8	2	8	2	
	Pansaleo	3	1			
Total		65	13	65	11	
Saquisilí	Saquisilí	18	4	19	4	
	Canchagua	6	1	6	1	
	Chantilín	1	1			
	Cochapamba	5	1	5	1	
Total		30	7	30	6	
Sigchos	Sigchos	10	2	12	2	
	Chugchilán	8	2	9	2	
	Isinliví	4	1	5	1	
	Las Pampas	3	1			
	Palo Quemado	1	1			
Total		26	7	26	5	
Total Cotopaxi Province		**456**	**114**	**456**	**102**	

ANNEX XVI. OPERATIONS RESEARCH BRIEF

Ecuadoran mother swaddles her newborn in the Kangaroo position.

Key Findings:

-Postpartum/postnatal visits within the first 2 days of birth increased from 63% to 88%.

-Facility deliveries using AMTSL increased from 68% to 97%.

-Newborns receiving postnatal care within 48 hours of birth increased from 52.5% to 81% in intervention parishes, nearly double the increase in the non-intervention group.

Improving Postpartum Best practices for Mothers and Newborns in Rural Ecuador

This project was funded by the U.S. Agency for International Development through the Child Survival and Health Grants Program.

December 2013

Background

The intra-partum and early-postpartum period (the first two–three days after birth) is the time of highest mortality risk for mothers and newborns. Despite strong international evidence of the positive effect on maternal and newborn mortality of early-postpartum best practices, including during household and community- and home-based care, most women and newborns in Ecuador's Cotopaxi province have not benefitted from such practices. Contributing to increased vulnerability for women and newborns in the first week after birth in the province are poor household compliance with maternal and newborn care best practices; a lack of home- or facility-based early-postpartum services, early discharge from facilities after delivery, delayed recognition of danger signs and (delayed) care seeking, and a lack of linkages and effective referral mechanisms between traditional birth attendant (TBA) home care and formal health system services.

Seeking to improve the coverage and quality of early-postpartum services, enhance household knowledge, and increase the use of best practices, the USAID-funded CSHG Cotopaxi project's main innovation was the introduction and implementation of a province-wide EONC network. The network has three interacting levels**:** 1) a parish-level "micro-network" (described below) that unites community and primary health care providers and representatives; 2) a county-level network that coordinates community, primary, and hospital services at that level; and 3) coordination of referral-level comprehensive obstetric and neonatal services in the provincial capital hospitals.

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OPERATIONS RESEARCH BRIEF

Intervention Design and Implementation

The operations research (OR) intervention, implemented as part of the broader USAID-funded EONC project combined early-postpartum service delivery (home and facility, including clinical care and counseling) and a social behavior change communication (SBCC) intervention. The service delivery and SBCC interventions were introduced in two phases in the 21 parishes. In the first phase (2009–2011), the OR intervention and other project interventions were introduced in seven parishes in Pujili county, the county hospital, and the tertiary provincial hospital. That phase was intended to generate learning for extending the intervention to the phase two parishes. In that phase (2012–2013), the OR intervention and other project interventions were extended to the remaining 14 project parishes.

The combined OR service delivery and SBCC interventions focused on 1) building the capacity and performance of front-line, parish micro-network teams to provide high-quality postpartum services for women and their newborns in project parishes (after both home and facility deliveries) and 2) disseminating SBCCs, primarily through media, such as radio.

The micro-network teams were supported to use both findings from the baseline household assessment and their own knowledge of the local setting to identify and prioritize key barriers to the delivery of early-postpartum services at the household and facility levels. These teams were comprised of community and social organization representatives, TBAs, midwives, nurses and doctors. They met monthly to review progress and troubleshoot challenges.

Methodology

The study design used a pre-post intervention design to assess the degree of change from baseline to endline; it also compared intervention and non-intervention sites. Due to resource constraints, non-intervention parishes neighbored intervention parishes and were not randomly selected, making it impossible to limit the effects of the SBCC intervention to intervention sites (since media messages could not be limited to intervention parishes).

Key data collected and analyzed were 1) baseline and endline household survey results to enable us to calculate changes in household best practices and 2) project monitoring data to enable us to calculate changes in coverage and in the quality of early-postpartum services provided by skilled providers in facilities and by trained TBAs and/or skilled providers in homes. Our analyses focused on assessing project impact on 1) access to postpartum care (in a facility and at home); 2) household knowledge and self-reported postpartum best practices; 3) TBA knowledge, performance, and provision of early-postpartum home services; and 4) coverage and quality of facility early-postpartum services for mothers and newborns.

Findings

The OR intervention was associated with significant and large improvements in household survey results from baseline to endline with respect to knowledge, best practices, and satisfaction. This association applies to all household samples and the rural intervention and (rural) non-intervention parishes. In the total sample, significant increases were seen in the following proportions from baseline to endline (all $p \leq 0.001$):

- Mothers who exclusively breastfed for six months (39% to 51%),
- Mothers who could name two newborn danger signs (75% to 97%),
- Mothers who could name two postpartum maternal danger signs (66% to 93%), Mothers making at least two birth preparations before the birth of their youngest child (57% to 73%),
- Mothers who knew at least two birth preparedness steps (68% to 81%), and
- Mothers who knew at least two danger signs during labor/delivery 54% to 88%.

Furthermore, with respect to early-postpartum care, a significant increase was observed in the proportion of postpartum/postnatal visits within the first two days of birth: The rate rose from 63% to 88% ($p \leq 0.001$). In comparing rural non-intervention parishes and (rural) intervention parishes in comparable neighboring areas, we found a significantly higher proportion of newborns receiving postnatal care within 48 hours of birth—the primary OR intervention—in the intervention parishes.

Project monitoring and evaluation data in facilities (clinics and hospitals) serving the intervention parishes improved consistently in the quality of care from the project's first trimester to its final trimester for most targeted obstetric and neonatal quality of care indicators. The following changes occurred between these trimesters:

- Facility antenatal care (ANC) sessions adherent with clinical standards rose from 47% to 70% ($p \leq 0.001$).
- Facility postpartum sessions adherent with clinical standards rose from 54% to 83% ($p \leq 0.001$).
- Newborn facility visits adherent with clinical standards rose from 54% to 64% ($p = 0.01$).
- Facility deliveries receiving active management of third stage labor (AMTSL) rose from 68% to 97%.
- Facilities' full compliance with a set of 11 EONC standards rose from 13% to 50% ($p \leq 0.001$).
- TBA adherence with maternal postpartum physical examination standards as assessed by simulation or real-time observation using a structured checklist rose from 54% to 77% ($p \leq 0.001$).

Conclusions and Lessons Learned

OR findings demonstrate that in a Latin American setting with historically low coverage and poor quality early-postpartum services plus longstanding rifts between indigenous and formal health system approaches to maternal-newborn health, the OR and broader project interventions were a feasible and effective strategy for building coordinated service delivery networks that in turn contributed to significantly improved postpartum best practices and outcomes for mothers and newborns. Key lessons learned include the importance of aligning interventions with established national and provincial priorities and integrating interventions into existing systems in close collaboration with system stakeholders and decision makers at national policy, provincial management and service delivery and community levels.

Recommendations and Use of Findings

The Cotopaxi EONC network model proved to be a promising strategy for establishing a continuum of coordinated household, community, health center, and hospital services. Consideration should be given to adapting and implementing the model in settings with similar challenges and contexts. Close collaboration with Ministry of Health and other partners in building such networks can help promote best practices into national policy, increasing the chance of sustainability and scale-up.

The Cotopaxi Essential Obstetric and Newborn Care Project in the Cotopaxi Province of Ecuador is supported by the American people through the United States Agency for International Development (USAID) Child Survival and Health Grants Program. The Cotopaxi Essential Obstetric and Newborn Care Project is managed by the Center for Human Services under Cooperative Agreement No. GHS-A-00-09-00008-00. The views expressed in this material do not necessarily reflect the views of USAID or the United States Government.

For more information about the Child Survival Project in Ecuador, visit: http://www.urc-chs.com/project?ProjectID=8&keyword=eonc

ANNEX XVII. STAKEHOLDER DEBRIEF POWERPOINT PRESENTATION

Improving Essential Obstetric and Neonatal Care in Cotopaxi, Ecuador: Final Evaluation Debrief

Nancy L Sloan, DrPH

Child Survival and Health Grants Program (CSHGP)
Final Evaluation

August 12, 2013

Project Background: Innovation & OR Goal, Objectives & Outcomes

Goal/Impact

To reduce maternal and newborn mortality and morbidity in Cotopaxi province

Strategic Objective

Improved household health promotion practices and utilization of a continuum of high-impact community- and facility-based maternal newborn services provided as part of a coordinated network of CHW's, health facilities and social organizations.

Results/Outcomes

1	2	3	4
Increased availability/ access to a coordinated continuum of high-impact maternal newborn care provided as part of a network of community and facility services.	Improved knowledge / demand for evidence-based community and facility MNC services, including improved household health promotion practices.	Improved quality of MNC services provided as part of a coordinated network of CHWs and facilities	Improved policy environment for coordination among community health workers, health care institutions, and community /social organizations

Evaluation Purpose

- Advance USAID goals to strengthen MNH, equity/ ;targeting of marginalized, vulnerable and underserved populations; public-private sector partnerships
- Advance MOH goals to strengthen the health system to achieve sustained improvement in MNH and survival, particularly among vulnerable populations
- Support innovative, integrated community-oriented programming of PVOs/NGOs and their in country partners.
- Provide an opportunity for stakeholders (mothers, network teams, caregivers & administrators, Cotopaxi regional MOH and Social Security Representatives, local partners/organizations, and donors) to appreciate their accomplishments and share their views.
- Serve as a source of evidence to inform decisions about future program designs and policies for:
  - In-country partners at national, regional, and local levels, including the MOH, the Social Security Institute, the Peasant Social Security Program, the Zumbahua Program of the Claudio Benatti Foundation, various NGOs, district and provincial health teams, local organizations, and communities in project areas.
  - USAID (CSHGP, Global Health Bureau, USAID Mission in Ecuador and other CSHGP grantees).
  - The international global health community.

EONC Network Strategy

EONC Network Strategy

Alignment with Stakeholder Priorities

- USAID
  - "Household to Hospital Continuum of Care" approach; "Respectful Care at Birth"; evidence-based maternal-neonatal services; SBCC; competency-based training; health sector reform and health systems strengthening; gender; targeting of marginalized, vulnerable and underserved populations; public-private sector partnerships
- MOH
  - National Development Plan 2009-2013; the National MOH Accelerated Plan to Reduce Maternal and Neonatal Deaths; 2008 Constitution, Free Maternity Law, 2013 Norms
- NGOs
  - regional Latin American and Caribbean (LAC) initiatives of by PAHO, UNFPA, Plan International, World Vision, & local NGOs (bilateral and multilateral USAID and MOH partners) to reduce MNC mortality and morbidity: the Latin American Maternal Mortality Initiative (LAMM) and the LAC Newborn Alliance
- Service Providers/Caregivers
  - Overcoming deficiencies through coordination
- Service Users
  - Saving women's and newborns' lives

Evaluation Questions

1. To what extent did the project improve equitable access to, utilization of, and availability of a continuum of high-impact community- and facility-based maternal newborn services through a coordinated network of TBAs, health facilities and social organizations?
2. To what extent did the project achieve its objective to improve household maternal newborn best practices, including household knowledge, care-seeking and service utilization and self-reported behaviors?
3. To what extent was the project able to improve quality of maternal newborn care services provided at household, health center and hospital levels (by trained TBAs and skilled providers)?
4. To what extent was the project able to promote a favorable policy environment to increase the likelihood that project gains would be sustained and scaled up after project completion?
5. How well did the project achieve its central OR innovation of increasing coverage and quality of home- and facility-based early post-partum care for mother and newborn?

Evaluation Design, Methods, and Limitations

- Methods
  - Review of project documents (DIP, mid-term evaluation, KPC household survey reports, Operations Research report, stakeholder policy documents)
  - Collection of qualitative data (KI interviews, presentations, observations)
  - Review and statistical analysis of project documents that confirm project implementation and/or revision of planned activities
  - Review and statistical analysis of quantitative baseline and endline household KPC surveys and project monitoring and evaluation data
- Limitations
  - Use of extant data (M&E example: referral; Survey example: sampling requires stratification, potential discrepancies between M&E and Survey data given distinct methods)
  - Generalizability

Evaluation Participants

- USAID
- MOH Systems Director/Coordinator
- Cotopaxi Provincial Health Director and Provincial Technical Team
- Project Network Team
- Rural Micro-network Team (MDs, RN, MWs, TAPS & TBAs), Guangaje
- Basic Hospital Rafael Ruiz EMC Team, Pujilí
- EONC Network County EMC Implementation Team, Pujilí
- Provincial Hospital EMC & KMC Teams, Latacunga
- CHS Project Staff, Latacunga/Quito

Preliminary Findings: Household Survey Socio Demographic Status

		Baseline or endline survey					
		Baseline		Endline		Total	
		%	nt	%	n	%	n
Age Group	15 - 19	16.5%	76	14.3%	59	15.4%	135
	20 - 29	49.1%	227	51.9%	214	50.5%	441
	30 - 39	27.9%	129	27.9%	115	27.9%	244
	>=40	6.5%	30	5.8%	24	6.2%	54
Education	None/Primary	56.5%	261	54.4%	224	55.5%	485
	Secondary	35.3%	163	38.3%	158	36.7%	321
	College	8.2%	38	7.3%	30	7.8%	68
Ethnicity	White	5.8%	27	.2%	1	3.2%	28
	Mestiza	63.2%	292	57.5%	237	60.5%	529
	Indigenous	27.5%	127	40.8%	168	33.8%	295
	Other	3.5%	16	1.5%	6	2.5%	22
Profession	Housewife	53.0%	245	29.9%	123	42.1%	368
	Agriculture with own property	21.9%	101	39.6%	163	30.2%	264
	Other	25.1%	116	30.6%	126	27.7%	242
	No response	0.0%	0	0.0%	0	0.0%	0
Marital Status	Single	19.3%	89	15.8%	65	17.6%	154
	Married	54.3%	251	60.9%	251	57.4%	502
	Live Together	23.4%	108	21.8%	90	22.7%	198
	Other	3.0%	14	1.5%	6	2.3%	20

Preliminary Findings (1): Household Survey Access & Coverage

		Baseline or endline survey					
		Baseline		Endline		Total	
		%	n	%	n	%	n
Institutional delivery	No	26.0%	120	30.8%	127	28.3%	247
	Yes	74.0%	342	69.2%	285	71.7%	627
Institutional delivery with an SBA (doctor, nurse or midwife)*	No	2.6%	9	0.0%	0	1.4%	9
	Yes	97.4%	333	100.0%	285	98.6%	618
Delivered at home report institutional post-partum visit within first 2 days of life	No	99.2%	119	94.5%	120	96.8%	239
	Yes	.8%	1	5.5%	7	3.2%	8
Delivered at home report home post-partum visit within first 2 days of life	No	96.7%	116	92.1%	117	94.3%	233
	Yes	3.3%	4	7.9%	10	5.7%	14
Delivered at home report home post-partum visit within the first week of life	No	84.2%	101	96.9%	123	90.7%	224
	Yes	15.8%	19	3.1%	4	9.3%	23
Delivered at home report institutional post-partum visit within the first week of life	No	88.3%	106	94.5%	120	91.5%	226
	Yes	11.7%	14	5.5%	7	8.5%	21
Institutional deliveries report post-partum discharge >2 days of life	No	95.9%	328	29.8%	85	65.9%	413
	Yes	4.1%	14	70.2%	200	34.1%	214
Institutional deliveries report home post-partum visit within the first week of life	No	99.7%	341	100.0%	285	99.8%	626
	Yes	.3%	1	0.0%	0	.2%	1
Institutional deliveries report institutional post-partum visit within the first 2 days of life	No	100.0%	342	38.6%	110	72.1%	452
	Yes	0.0%	0	61.4%	175	27.9%	175
Home post-partum visit within first 2 days of birth after a home or facility delivery	No	38.0%	158	43.7%	167	40.7%	325
	Yes	62.0%	258	56.3%	215	59.3%	473
Home births attended by TBA	No	30.5%	136	32.5%	131	31.4%	267
	Yes	69.5%	310	67.5%	272	68.6%	582

Preliminary Findings (1): Monitoring and Evaluation Data

Births Receiving Postnatal Care in 48 Hours

Comparison of Last and First Implementation Intervention Trimesters						
	Births Receiving Postnatal Care Within 48 Hours					
	In Health Care Facilities		From a TBA		Total	
	First	Last	First	Last	First	Last
N	833	946	833	946	833	946
Mean	31.95%	38.14%	7.93%	9.40%	39.87%	47.55%
Std. Deviation	23.28%	13.89%	6.01%	4.01%	26.85%	12.26%
p	≤.001		≤.001		≤.001	

Preliminary Findings (1): Household Survey Access & Coverage: Complications

		Baseline or endline survey					
		Baseline		Endline		Total	
		%	n	%	n	%	n
Postpartum complications at home	No	90.2%	416	88.3%	364	89.3%	780
	Yes	9.8%	45	11.7%	48	10.7%	93
Postpartum complications at home referred and presented for complication	No	93.3%	42	91.7%	44	92.5%	86
	Yes	6.7%	3	8.3%	4	7.5%	7
Postpartum complications at home that was referred	No	50.0%	3	16.7%	1	33.3%	4
	Yes	50.0%	3	83.3%	5	66.7%	8

Preliminary Findings (2): Household Survey Knowledge, Attitudes & Best Practices

		Baseline or endline survey					
		Baseline		Endline		Total	
		%	n	%	n	%	n
Mothers report BF within first hour after birth	No	41.1%	190	44.7%	184	42.8%	374
	Yes	58.9%	272	55.3%	228	57.2%	500
Mothers who did not give anything other than breast milk until age 6 months	No	60.8%	281	49.0%	202	55.3%	483
	Yes	39.2%	181	51.0%	210	44.7%	391
Mothers who can name two pregnancy danger signs	No	35.1%	162	30.6%	126	33.0%	288
	Yes	64.9%	300	69.4%	286	67.0%	586
Mothers who can name two newborn danger signs	No	24.7%	114	3.2%	13	14.5%	127
	Yes	75.3%	348	96.8%	399	85.5%	747
Mothers who can name two post-partum maternal danger signs	No	34.2%	158	6.8%	28	21.3%	186
	Yes	65.8%	304	93.2%	384	78.7%	688
Mothers making at least 2 birth preparations before birth of their youngest child	No	43.2%	199	27.4%	113	35.7%	312
	Yes	56.8%	262	72.6%	299	64.3%	561
Mothers knows at least 2 birth preparedness steps	No	32.3%	149	19.4%	80	26.2%	229
	Yes	67.7%	313	80.6%	332	73.8%	645
Mothers knows at least 2 danger signs during labor/delivery	No	45.7%	211	11.7%	48	29.6%	259
	Yes	54.3%	251	88.3%	364	70.4%	615
Mothers would recommend a friend to deliver in the facility where she delivered	No	35.3%	163	2.5%	7	22.8%	170
	Yes	64.7%	299	97.5%	278	77.2%	577
Mother can identify at least 2 routine newborn care best practices	No	16.9%	78	3.4%	14	10.5%	92
	Yes	83.1%	384	96.6%	398	89.5%	782

Preliminary Findings (3): M&E Quality of Home & Facility Services

	First		Last	
Last vs. First Trimester	**n**	**%**	**n**	**%**
Facility ANC sessions adherent with clinical standards	3	43.333	4	69.975
Facility PP sessions for women adherent with clinical standards	3	58.7	4	61.5
Newborn facility visits adherent with clinical standards	3	46.567	4	50.775
Facility deliveries benefitting from AMTSL	1	68.4	1	96.6
Facility premature births for which ACS administered antenatally	3	66.7	27	92.6
Facility labor with evidence-based management PROM	1	0	1	100
Compliance with ENC standards in facilities	1	13.2	1	49.7
Facility compliance with PPH standards	1	0		
Facility compliance with newborn sepsis case management standards	1	0		
LastYear	**n**	**%**	**n**	**%**
TBAs can cite at least 2 pregnancy danger signs	3	94.433	3	100
TBAs can cite at least 2 birth preparedness actions	4	87.625	2	98.1
TBAs can cite at least 2 PP danger signs for mother	3	91.967	3	100
TBAs can cite at least 2 newborn best practices	3	91.4	3	100

Preliminary Health Impact Findings: Policy Impact Findings:

- July 2013 Institutionalized the policy of EONC (Norma 2013)
- Have specified and dedicated the budget to expand the EONC Network model nationally

2010	2011	Proportional Decline in NMR
8.2/1,000	7.5/1,000	8.6%

Evaluation Results

1. To what extent did the project improve equitable access to, utilization of, and availability of a continuum of high-impact community- and facility-based maternal newborn services through a coordinated network of TBAs, health facilities and social organizations? *Increased principal outcome of postpartum visits within 2 days of birth. Data require further stratification to assess equity.*

2. To what extent did the project achieve its objective to improve household maternal newborn best practices, including household knowledge, care-seeking and service utilization and self-reported behaviors? *Increased exclusive breastfeeding, naming MN danger signs, knowing newborn best practices, birth preparedness, referral of complications from home to facility and satisfaction with services.*

3. To what extent was the project able to improve quality of maternal newborn care services provided at household, health center and hospital levels (by trained TBAs and skilled providers)? *Quality was nearly universally improved*

4. To what extent was the project able to promote a favorable policy environment to increase the likelihood that project gains would be sustained and scaled up after project completion? *MOH assumption of the model for national scale up*

5. How well did the project achieve its central OR innovation of increasing coverage and quality of home- and facility-based early post-partum care for mother and newborn? *In the relatively short implementation time frame (1 year in 3 counties and 2 years in Pujili), the project has achieved profound effects. Assessment of the extent to which the project has increased coverage requires further analysis (reflecting evaluator time constraints at visit)*

Conclusions

1. What were the specific strategies employed to meet the projects main objectives? Coordination, networking, communications, QI, mortality surveillance, advocacy
2. What were the main challenges encountered? Prolonged implementation that established a coordinated network & institutionalization of the model
3. What were the main lack of achievements? Little involvement of organized beneficiaries
4. What were the main achievements? Which elements of the project are most likely to be sustained or expanded and why and how? What are stakeholder perspectives on the OR implementation, and how likely is it that the project will affect capacity, practices, and policy in Ecuador? The achievements in improving access/coverage/utilization. These include:
    1. Improved KAP, QOC & impact are substantial.
    2. Reductions in the number of maternal deaths with death audit in the last 6 months.
    3. Reductions in neonatal deaths have been observed in the past year.
    4. MOH assumption of the model for national scale up

Network Change Model
Key Elements

1. Create a mechanism to improve networking and coordination of services
2. Provide rapid/short courses to improve quality of care and establish continuous quality improvement systems
3. Improve clinical knowledge to manage complications
4. Use culturally appropriate communications mechanisms
5. Manage the process across all levels of care


Thank you

ANNEX XVIII. PROJECT DATA FORM

Child Survival and Health Grants Program Project Summary

Dec-19-2013

Center for Human Services (Ecuador)

General Project Information

Cooperative Agreement Number:	GHS-A-00-09-00008
CHS Headquarters Technical Backstop:	Kathleen Hill
CHS Headquarters Technical Backstop Backup:	Linsey Longstreth
Field Program Manager:	Mario , Chavez
Midterm Evaluator:	Pamela Putney
Final Evaluator:	Nancy Sloan
Headquarter Financial Contact:	Zhiwei Zhang
Project Dates:	9/30/2009 - 12/31/2013 (FY2009)
Project Type:	Innovation
USAID Mission Contact:	Paulyna de Martinez
Project Web Site:	http://www.urc-chs.com/project?ProjectID=8&CountryIDs=21

Field Program Manager

Name:	Mario , Chavez (Field Program Manager)
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Alternate Field Contact

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Grant Funding Information

USAID Funding: $1,749,934

PVO Match: $437,483

General Project Description

The Center for Human Services (CHS), a 2009 Innovation category grantee, is implementing the *Cotopaxi, Ecuador Essential Obstetric and Neonatal Care (EONC) Project* in the remote and mountainous province of Cotopaxi, Ecuador. The project goal is to reduce maternal and newborn mortality by improving household practices and building a provincial-level network of coordinated maternal newborn health services strengthening linkages between levels of care (community, primary, hospital) and along the continuum of antenatal, intrapartum and post-partum care.

The project seeks specifically to strengthen coverage, utilization, coordination and quality of community and facility-based high impact, evidence-based services for mothers and newborns, with community services delivered by traditional birth attendants (TBAs) closely supported by health center staff and community organizations.

Project Location

Latitude: -0.93
Longitude: -78.61
Project Location Types: Rural
Levels of Intervention: District Hospital
Health Center
Health Post Level
Home
Community
Other: Provincial Hospital
Province(s): Cotopaxi Province
District(s): Latacunga, Sigchos, Saquisilí, La Mana, Pangua, Pujili, and Salcedo Districts
Sub-District(s): Matriz, Eloy Alfaro, Ignacio Flores, Juan Montalvo, San Buenaventura, Alaques, Belisario Quevedo, Guaitacama, Joséguango, Bajo Mulaló, 11 De Noviembre, Poalo, San Juan de Pastocalle, Tanicuchi, Toacaso' La Mana, Guasaganda, Pucayacu, Pangua, El Corazón, Moraspungo, Pinllopata, Ramón Campaña, Pujilí, Angamarca, Guangaje, La Victoria, Pilaló, Tingo, Zumbahua, Salcedo, San Miguel, Antonio José Holguín (Santa Lucía), Cusubamba, Mulalillo, Mulliquindil, Pansaleo, Saquisilí, Canchagua, Chantilín, Cochapamba, Sigchos, Chugchilán, Isinliví, Las Pampas, Palo Quemado

Operations Research Information

OR Project Title: Role of Traditional Birth Attendants in Post Partum Care
Cost of OR Activities: $199,180
Research Partner(s): Ecuador Ministry of Public Health
OR Project Description:

In Ecuador, essential maternal and neonatal care has been fragmented, poorly integrated, and often of low quality. In 2008, the Ministry of Health (MOH) launched a health care extension program model named “Basic Health Teams” (EBAS in Spanish) to expand coverage of high-impact services from primary health centers to the community. The MOH is also working towards a national official policy that establishes the role of the traditional birth attendants (TBAs) in the public health system.

The Center for Human Services (CHS), in partnership with Center for Population and Social Development Studies (CEPAR) and collaboration with the MOH, is piloting this new model to provide early postpartum home-based care interventions through TBAs and skilled providers. The model uses an Essential Obstetric and Neonatal Care network that coordinates community- and facility-based services (public and private), and promotes service delivery along the continuum of care from the households to facilities. This network supports increased coverage and improved quality of care in remote, indigenous communities.

The evidence and lessons generated from the evaluation of this model will inform the Ecuadoran MOH’s policies and strategies as well as regional strategic initiatives in Latin America and Caribbean (LAC) (e.g. Latin American Maternal Mortality Initiative, LAC Newborn Alliance) aimed at improving the delivery of high impact interventions to reduce maternal and neonatal mortality among vulnerable populations.

Partners

Ecuador Ministry of Public Health (Collaborating Partner) $0
Plan International (Collaborating Partner) $0

World Vision (Collaborating Partner) $0

Strategies

Social and Behavioral Change Strategies:	Community Mobilization Group interventions Social Marketing Mass media and small media
Health Services Access Strategies:	Emergency Transport Planning/Financing Addressing social barriers (i.e. gender, socio-cultural, etc) Implementation with a sub-population that the government has identified as poor and underserved Implementation in a geographic area that the government has identified as poor and underserved
Health Systems Strengthening:	Quality Assurance Supportive Supervision Developing/Helping to develop clinical protocols, procedures, case management guidelines Developing/Helping to develop job aids Monitoring health facility worker adherence with evidence-based guidelines Providing feedback on health worker performance Monitoring CHW adherence with evidence-based guidelines Referral-counterreferral system development for CHWs Community role in supervision of CHWs Community role in recruitment of CHWs Development of clinical record forms Review of clinical records (for quality assessment/feedback) Coordinating existing HMIS with community level data Community input on quality improvement
Strategies for Enabling Environment:	Advocacy for revisions to national guidelines/protocols Stakeholder engagement and policy dialogue (local/state or national) Advocacy for policy change or resource mobilization Building capacity of communities/CBOs to advocate to leaders for health

Capacity Building

Local Partners:	Local Non-Government Organization (NGO) National Ministry of Health (MOH) Dist. Health System Health Facility Staff Other National Ministry Health CBOs Other CBOs Government sanctioned CHWs Non-government sanctioned CHWs TBAs Private Providers (Other Non-TBA)

Interventions & Components

Maternal & Newborn Care (100%)

- Emergency Obstetric Care
- Neonatal Tetanus
- Recognition of Danger signs
- Newborn Care
- Post partum Care
- Child Spacing
- Normal Delivery Care
- Birth Plans
- Control of post-partum bleeding
- Emergency Transport
- Kangaroo Mother Care (skin to skin care)
- AMTSL
- Pre-eclampsia

CHW Training
HF Training

Operational Plan Indicators

Number of People Trained in Maternal/Newborn Health			
Gender	**Year**	**Target**	**Actual**
Female	2010	390	
Female	2010		380
Male	2010		222
Male	2010	100	
Female	2011	250	
Female	2011		328
Male	2011		149
Male	2011	130	
Female	2012	185	
Female	2012		221
Male	2012		78
Male	2012	185	
Female	2013	150	
Female	2013		683
Male	2013		216
Male	2013	150	
Female	2014	0	
Female	2014		92
Male	2014		60
Male	2014	0	
Number of People Trained in Child Health & Nutrition			
Gender	**Year**	**Target**	**Actual**
Female	2010	0	
Female	2010		0
Male	2010		0
Male	2010	0	
Female	2011	0	
Female	2011		0
Male	2011		0
Male	2011	0	
Female	2012	0	
Female	2012		0
Male	2012		0
Male	2012	0	
Female	2013	0	
Female	2013		0
Male	2013		0
Male	2013	0	
Female	2014	0	
Female	2014		0
Male	2014		0
Male	2014	0	
Number of People Trained in Malaria Treatment or Prevention			
Gender	**Year**	**Target**	**Actual**
Female	2010		0
Female	2010	0	
Male	2010		0
Male	2010	0	
Female	2011		0
Female	2011	0	
Male	2011		0

Male	2011	0	
Female	2012		0
Female	2012	0	
Male	2012		0
Male	2012	0	
Female	2013		0
Female	2013	0	
Male	2013		0
Male	2013	0	
Female	2014		0
Female	2014	0	
Male	2014		0
Male	2014	0	

Locations & Sub-Areas

Total Population: 384,499

Target Beneficiaries

	Ecuador - CHS - FY2009
Children 0-59 months	23,590
Women 15-49 years	44,345
Beneficiaries Total	67,935

Rapid Catch Indicators: DIP Submission

Sample Type: 30 Cluster

Indicator	Numerator	Denominator	Percentage	Confidence Interval
Percentage of mothers with children age 0-23 months who received at least two Tetanus toxoid vaccinations before the birth of their youngest child	**194**	**462**	**42.0%**	**7.4**
Percentage of children age 0-23 months whose births were attended by skilled personnel	**333**	**462**	**72.1%**	**8.8**
Percentage of children age 0-5 months who were exclusively breastfed during the last 24 hours	**124**	**133**	**93.2%**	**17.0**
Percentage of children age 6-23 months who received a dose of Vitamin A in the last 6 months: card verified or mother's recall	**137**	**329**	**41.6%**	**8.8**
Percentage of children age 12-23 months who received a measles vaccination	**143**	**203**	**70.4%**	**13.1**
Percentage of children age 12-23 months who received DTP1 according to the vaccination card or mother's recall by the time of the survey	**185**	**203**	**91.1%**	**13.7**
Percentage of children age 12-23 months who received DTP3 according to the vaccination card or mother's recall by the time of the survey	**146**	**203**	**71.9%**	**13.2**
Percentage of children age 0-23 months with a febrile episode during the last two weeks who were treated with an effective anti-malarial drug within 24 hours after the fever began	**0**	**0**	**0.0%**	**0.0**
Percentage of children age 0-23 months with diarrhea in the last two weeks who received oral rehydration solution (ORS) and/or recommended home fluids	**71**	**131**	**54.2%**	**15.2**
Percentage of children age 0-23 months with chest-related cough and fast and/or difficult breathing in the last two weeks who were taken to an appropriate health provider	**61**	**88**	**69.3%**	**19.9**
Percentage of households of children age 0-23 months that treat water effectively	**300**	**462**	**64.9%**	**8.5**
Percentage of mothers of children age 0-23 months who live in households with soap at the place for hand washing	**383**	**462**	**82.9%**	**9.0**
Percentage of children age 0-23 months who slept under an insecticide-treated bednet (in malaria risk areas, where bednet use is effective) the previous night	**0**	**0**	**0.0%**	**0.0**
Percentage of children 0-23 months who are underweight (-2 SD for the median weight for age, according to the WHO/NCHS reference population)	**0**	**0**	**0.0%**	**0.0**
Percentage of infants and young children age 6-23 months fed according to a minimum of appropriate feeding practices	**85**	**329**	**25.8%**	**7.2**
Percentage of mothers of children age 0-23 months who had four or more antenatal visits when they were pregnant with the youngest child	**316**	**462**	**68.4%**	**8.7**
Percentage of mothers of children age 0-23 months who are using a modern contraceptive method	**213**	**462**	**46.1%**	**7.7**
Percentage of children age 0-23 months who received a post-natal visit from an appropriately trained health worker within two days after birth	**7**	**462**	**1.5%**	**1.6**

Rapid Catch Indicators: Mid-term

Rapid Catch Indicators: Final Evaluation

Sample Type: 30 Cluster

Indicator	Numerator	Denominator	Percentage	Confidence Interval
Percentage of mothers with children age 0-23 months who received at least two Tetanus toxoid vaccinations before the birth of their youngest child	**223**	**356**	**62.6%**	**7.1**
Percentage of children age 0-23 months whose births were attended by skilled personnel	**287**	**412**	**69.7%**	**6.3**
Percentage of children age 0-5 months who were exclusively breastfed during the last 24 hours	**70**	**79**	**88.6%**	**9.9**
Percentage of children age 6-23 months who received a dose of Vitamin A in the last 6 months: card verified or mother's recall	**180**	**334**	**53.9%**	**7.6**
Percentage of children age 12-23 months who received a measles vaccination	**206**	**232**	**88.8%**	**5.7**
Percentage of children age 12-23 months who received DTP1 according to the vaccination card or mother's recall by the time of the survey	**166**	**232**	**71.6%**	**8.2**
Percentage of children age 12-23 months who received DTP3 according to the vaccination card or mother's recall by the time of the survey	**158**	**232**	**68.1%**	**8.5**
Percentage of children age 0-23 months with a febrile episode during the last two weeks who were treated with an effective anti-malarial drug within 24 hours after the fever began	**0**	**0**	**0.0%**	**0.0**
Percentage of children age 0-23 months with diarrhea in the last two weeks who received oral rehydration solution (ORS) and/or recommended home fluids	**77**	**138**	**55.8%**	**11.7**
Percentage of children age 0-23 months with chest-related cough and fast and/or difficult breathing in the last two weeks who were taken to an appropriate health provider	**139**	**202**	**68.8%**	**9.0**
Percentage of households of children age 0-23 months that treat water effectively	**223**	**412**	**54.1%**	**6.8**
Percentage of mothers of children age 0-23 months who live in households with soap at the place for hand washing	**338**	**412**	**82.0%**	**5.2**
Percentage of children age 0-23 months who slept under an insecticide-treated bednet (in malaria risk areas, where bednet use is effective) the previous night	**0**	**0**	**0.0%**	**0.0**
Percentage of children 0-23 months who are underweight (-2 SD for the median weight for age, according to the WHO/NCHS reference population)	**0**	**0**	**0.0%**	**0.0**
Percentage of mothers of children age 0-23 months who had four or more antenatal visits when they were pregnant with the youngest child	**297**	**412**	**72.1%**	**6.1**
Percentage of mothers of children age 0-23 months who are using a modern contraceptive method	**206**	**412**	**50.0%**	**6.8**
Percentage of children age 0-23 months who received a post-natal visit from an appropriately trained health worker within two days after birth	**245**	**412**	**59.5%**	**6.7**

Rapid Catch Indicator Comments

ANNEX XIX. EVALUATOR ANALYSES OF QUANTITATIVE RESULTS

SEE ANNEX 19 TABLES 3-7

The Final KPC data were made available on the first day of the evaluator's visit to Ecuador. However, the report documents were provided later and present only the Final household survey results without statistical comparison to the baseline survey. Therefore, the evaluator analyzed a substantial amount of data provided in SPSS for Windows data bases comparing the baseline and endline household surveys comparing initial and final (e.g., those available by August 4, 2013, the first day of the evaluator's visit) monitoring and evaluation statistics. The household survey comparison data are provided as Tables 3, 4, 5 and 6 in Annex XIX. The monitoring and evaluation comparisons are provided in Table 7.