

MELA RESEARCH

Identification of Pregnancies,
Deliveries, and Coverage of
Postnatal Care Visits for the
COMBINE program:
External Validation Survey

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EXECUTIVE SUMMARY

Background: The Saving Newborn Lives Program (SNL) of Save the Children, Ethiopia and JSI Research & Technology, Inc. in collaboration with the Federal Ministry of Health (FMOH), Ethiopia is conducting a trial to strength and evaluate the effect of a package of community-based interventions in the framework of the Health Extension program (HEP), including integrated Community case Management (ICCM). The community-based Interventions for Newborns in Ethiopia (COMBINE) trial is being conducted in a total population of 640,000 in Sidama Zone in South Nation Nationalities and people's Region (SNNP) and East Shoa and West Arsi Zones of Oromia Region. Since May 2008, COMBINE supports maternal and newborn health activities in 22 selected research sites. The project works with the Federal Ministry of Health (FMOH), Regional Health Bureaus (RHB), Zonal Health Offices (ZoHOs), and Woreda Health Offices (WorHOs). COMBINE currently collects data on vital events (pregnancies, births, deaths) in Kebeles through home visits cards that record identified pregnant women and home visits conducted by female volunteer community workers (vCHWs) and Health extension workers (HEWs). The surveillance data is used to estimate coverage of identified pregnancies, deliveries, and PNC home visits based on census data collected during 2008-9 in research sites. COMBINE sought to validate the accuracy of coverage estimates through an external validation exercise and Mela Research PLC, a local consulting firm, was contracted by Save the Children USA to conduct this study.

Objective: The purpose of this external validation survey was to validate estimate of the proportion of all live births identified by the current system and the proportion of all newborns who received a PNC home visit by vCHW or HEW within 2 days of birth (i.e. on the day of birth or on the day after birth).

Methods: The external validation employed a multi-stage cluster sampling design and intended to provide estimates for the entire COMBINE research sites. The survey identified and interviewed 359 recently delivered women (past 0-4 months) during the period of March 10 to July 2, 2011 in over 3800 rural households of 50 randomly selected Kebeles. Information was collected via one-on-one interview of households and women. The survey was fielded during June 12-July 5, 2011.

Results:

- Half (50%) of the women were visited at home by vCHWs during pregnancy of the child that was born after March 10, 2011. The corresponding percentage for the home visit by HEWs was only 8.7%. About 40% of the women were visited 2 or more times during pregnancy by vCHWs.
- A little bit over a third of the women (35.3%) who delivered after March 10, 2011 were visited by vCHWs within a week of delivery. HEWs reported to visit only 9% of the women during the same period. Only 9.3% of the women received three or more visits from vCHWs within a week of delivery.
- Within 2 days after delivery, 25.1% of the women reported to be visited by vCHWs. Only 3.1% of the women were visited by HEWs during the same period and the proportion that were visited either by vCHWs or HEWs within 2 days of delivery was 26.5%.

- On the whole, there was a significant variation in the proportion of women who received pregnancy and PNC home visits from vCHWs by zone with the highest coverage recorded in West Arsi, the lowest being in Sidama. For instance, the proportion that received PNC within 2 days of delivery ranged from a low of 17.7% in Sidama to 24.6% and 43.5%, respectively, in East Shoa and West Arsi zones.
- The validation survey indicators fall in the lower bound of the real-time (surveillance) based estimates. For instance, this validation survey put PNC home visit within a week of delivery in the range of 27%-52% across the three zones while the corresponding values fall in the range of 51-64%¹ in the real-time data. Likewise, the receipt of PNC visit within 2 days of delivery was lower in the validation survey ranging from 18%-44% while this was in the range of 43%-62%² in the real-time based estimates.

Conclusion: In sum, the external validation survey found lower coverage estimates than the real-time surveillance for indicators of interest including pregnancy and PNC home visits by vCHWs and HEWs. None of the data sources can be taken as gold standard to gauge the true coverage rates, as both data sources are subjected to some limitations. Nevertheless, the noted big differences between the two data sources may raise questions on the accuracy of the real-time indicators values generated via the on going surveillance system, as this continues to be the main source of information for the COMBINE project. This also points to the need for a rigorous scrutiny of the ongoing surveillance system with respect to the process of data generation, reporting, data capturing, and denominators used, among others.

¹ Source: COMBINE project- Real-time data- coverage for June 2011 (data obtained on July 13, 2011)

² Ibid

I. INTRODUCTION AND BACKGROUND

While the overall health of children has improved around the world, the death rate of newborns i.e. babies less than one month old—has hardly changed. World leaders at the United Nations Millennium Summit in September 2000 agreed to reduce the deaths of children less than 5 years old by two-thirds before 2015. According to child health experts, this goal is unattainable without reducing newborn deaths by at least half, as these deaths now comprise 40 percent of all child deaths³. In fact, babies' risk of death during their first month is 15 times higher than during any other month of their first year⁴. Achieving this goal will require greater emphasis on proven, cost-effective measures to save newborn lives. According to WHO, three main causes of death — infections, birth complications, and complications of prematurity — account for an estimated 86 percent of all newborn deaths. Two-thirds of newborn deaths could be prevented through the high coverage of low-cost, low-tech maternal, newborn, and child health interventions. A home-care strategy to promote an integrated package of preventive and curative newborn care is proved to be effective in Bangladesh in reducing neonatal mortality in communities with a weak health system, low health-care use, and high neonatal mortality⁵.

Ethiopia stands among the countries with high child and neonatal mortality in the world. According to the 2005 Ethiopia DHS, the neonatal mortality rate is estimated at 39 per 1,000 live births.⁶ Infectious diseases especially tetanus reported to account for up to 44% of neonatal deaths in the country. Asphyxia is responsible for about a quarter of neonatal deaths and preterm birth results in 17% of infant deaths. Low birth weight also contributes to high neonatal mortality.⁷

The Saving Newborn Lives Program (SNL) of Save the Children, Ethiopia and JSI Research & Technology, Inc. in collaboration with the Federal Ministry of Health (FMOH), Ethiopia is conducting a trial to strength and evaluate the effect of a package of community-based interventions in the framework of the Health Extension program (HEP), including integrated Community case Management (ICCM). The community-based Interventions for Newborns in Ethiopia (COMBINE) trial is being conducted in a total population of 640,000 in Sidama Zone in South Nation Nationalities and people's Region (SNNP) and East Shoa and West Arsi Zones of Oromia Region.

Since May 2008, COMBINE supports maternal and newborn health activities in 22 selected research sites. The project works with the Federal Ministry of Health (FMOH), Regional Health Bureaus (RHB), Zonal Health Offices (ZoHOs), and Woreda Health Offices (WorHOs).

³ United Nations, Implementation of the United Nations Millennium Declaration—Report of the Secretary General, accessed online at <http://ods-dds-ny.un.org/doc/UNDOC/GEN/N02/506/69/PDF/N0250669.pdf?OpenElement>, on May 5, 2003.

⁴ V. Yinger and Elizabeth I. Ransom, "Why Invest in Newborn Health?" (Washington, DC: Population Reference Bureau, 2003).

⁵ Abdullah H Baqui, Shams El-Arifeen, Gary L Darmstadt, et al. Effect of community-based newborn-care intervention package implemented through two service-delivery strategies in Sylhet district, Bangladesh: a cluster-randomised controlled trial. *The Lancet*, Volume 371, Issue 9628, Pages 1936 - 1944, 7 June 2008

⁶ Central Statistical Authority (CSA) and ORC Macro. Ethiopia Demographic and Health Survey 2005. Addis Ababa, Ethiopia and Calverton, Maryland, USA: Central Statistical Authority and ORC Macro. 2006.

⁷ Lawn JE and Kerber K. 2006. Opportunities for Africa's Newborns: The Partnership for Maternal, Newborn & Child Health (PMNCH), South Africa.

COMBINE has developed and implemented a broad range of training programs focused on improving health worker technical skills in IMNCL. Additional training programs have also been conducted, to strengthen the links between HEWs and volunteer female community workers (vCHWs) for promotion of ANC, clean and safe delivery, and counseling on essential care to mothers and newborns during the postnatal period. COMBINE currently collects data on vital events (pregnancies, births, deaths) in Kebeles through home visits cards that record identified pregnant women and home visits conducted by female promoters and HEWs. The surveillance data is used to estimate coverage of identified pregnancies, deliveries, and PNC home visits based on census data collected during 2008-9 in research sites.

COMBINE sought to validate the accuracy of coverage estimates (within a range) through an external exercise and Mela Research PLC was contracted by Save the Children USA to conduct the study. The purpose of this external validation survey was to validate estimate of the proportion of all live births identified by the current system and the proportion of all newborns who received a PNC home visit by vCHW or HEW within 2 days of birth (i.e. on the day of birth or on the day after birth).

This report presents findings from the validation survey that was fielded in June 2011.

II. SURVEY DESIGN AND IMPLEMENTATION

2.1. Survey design

This sample survey primarily lends itself to a multi-stage cluster sampling design. It was intended to provide estimates for the entire COMBINE research sites.

Selection of Kebeles: At the first sampling stage, Kebeles (the lowest demonstrative unit) were selected using probability proportion to size (PPS) sampling.

Selection of Gashas/Gere: At the second stage, Gashas/Geres were selected. A Gasha in Sidama/Gere in Oromia is a small village often containing 25-40 households. In a Kebele there are between 20-60 Gashas/Geres depending on the size of the Kebele. The list of Gashas were obtained from each of the selected Kebeles for random selection. The data collection team obtained the list from the HEWs and using random sampling selected 4 Gashas per Kebele for the survey.

Selection of households: To select households, the survey teams went to the center of the Gasha/Gere and spin a pen to randomly determine the direction to follow. The survey team proceed along the direction the ballpoint of the pen was pointing. The first household that was found in that direction was the starting household for the interview. Consecutive households was visited and interviewed until the desired sample size was achieved.

Target respondents: The target respondents were households and women who delivered after March 10, 2011 (i.e. in previous 0-4 months).

2.2. Sample size

Based on the estimated coverage data of the real-time surveillance, with a mean coverage of PNC home visit approximately 65%, to achieve a precision of $\pm 7.5\%$ around the overall estimate, with 95% confidence level and 80% power, the sample size was estimated at 350 women. These 350 women were those who delivered after March 10, 2011.

The survey collected data in 50 randomly selected Kebeles with a target sample size of 7 women per Kebele. Data collection continued in a Kebele until the desired 7 women were interviewed. To get these 7 women (who delivered after March 10, 2011) in a Kebele, data collectors had to visit several households, ranging from 52-104 households and collected household level information to help identify a woman who delivered after March 10, 2011 in a household.

2.3. The questionnaires

Two types of questionnaires were used; these are Module 1 and 2:

Module 1- Screener For Recently Delivered Women: The respondents for this questionnaire were any adult (age 18 yrs or Older) household member. The questionnaire is short and asks few questions in order to identify woman who delivered after March 10, 2011. Apart from area identification and consent forms, the questionnaire collected information on the number of women age 15-49 years in the household, and asked for all women who

delivered since March 10, 2011 including the age of the newborn. It served to identify eligible respondents for Module 2.

Module 2. Questionnaire for women delivered after March 10, 2011. The questionnaire asks information on respondents characteristics, antenatal care use, pregnancy home visit by HEWs/vCHWs, delivery care, newborn care and postnatal care visit, information given to women during the pregnancy and PNC home visits, among others.

The survey procedure was that survey teams interviewed the head of the household or any adult member using Module 1 questionnaire irrespective of whether there was an eligible women for Module 2 in a household. If there is an eligible women (i.e. women who gave after March 10, 2011), she would be interviewed using Module 2. Module 1 and 2 questionnaires are linked using household and women identification numbers.

The questionnaires were administered in Amharic (in Sidama) and in Oromifa (in East Shoa and West Arsi zones of the Oromia region). Language expert translated the questionnaire to the local languages. The English versions of Module 1 & 2 are annexed (Annex 2)

2.4. Field staff and training

Four data collection teams were formed; 2 for SNNPR and 2 for Oromia. Each team composed of 4 interviewers and 1 supervisor. Two regional survey coordinators were deployed to organize the survey in the two regions throughout the field data collection period. Interviewers and supervisors that speak the local language and have prior experience in data collection in similar surveys were recruited from the study regions. The survey team underwent a 3-day intensive class room training, role plays and field practice before they were deployed for the actual fieldwork. Appropriate data collection training guides and manual were developed and implemented. A field supervision checklists and quality assurance procedure were devised and implemented. Close supervision and follow up was made during the entire fieldwork by the survey supervisors and survey coordinators. Each team and the regional survey coordinators were given with a four-wheel drive vehicle throughout the field period. Data collection including travel time took nearly three weeks during June 12-July 5, 2011.

2.5. Data management and analysis

Up on arrival of each questionnaire verification of questionnaire is conducted before data entry. Two office editors verified the eligibility criteria, the matching of Module 1 with Module 2 and assigned unique office identification to each pair. Data from the field were computerized using Epi-Info. Two highly experienced data entry clerks entered the questionnaire data. The data entry team was given orientation on the survey questionnaires, the nature of the data to be computerized, and the data dictionary. In order to control for possible errors during data entry a number of validation controls was employed including spot checking and running intermediate frequencies apart from the programmed skip and range rules. A double data entry was implemented in 100% of the data collected via Module 2 and there was a very high level of concordance between the two data sets and the few discrepancies were corrected by referring back to the questionnaire hard copies. In Module 1 we did double entry for 50% of the questionnaire and the level of concordance was extremely high (over 98%) and decided not to proceed with double data entry, as this was

quite satisfactory. As part of the data management plan we created appropriate dummy tables to guide analysis and tabulation. The analyses was guided by the study objectives and the indicators of interest. The analysis was restricted to simple descriptive and univariate methods. STAT 10 was used for data management and analysis.

III. PRESENTATION OF FINDINGS

3.1. Result of interview

The survey interviewed 3871 households in 50 randomly selected Kebeles. In these household, 4410 women in the reproductive age were identified, giving a mean of 1.14 women in the reproductive age per household (Table 1).

The target respondents for the survey were women who delivered recently (within the previous 4 months). In order to standardize the identification of such women, we set a reference date for recently delivered women at March 10, 2011 (*Megabit 1, 2003 in Ethiopian calendar*) and that any women who delivered after March 10, 2011 in the sampled households were the focus of interview. In the sampled households a total of 370 women who delivered after March 10, 2011 were identified, which represents 8.4% of the total women in the reproductive age. Nevertheless, interview was completed for 359 women and the response rate for these women was high at 97% (Table 1).

Table 1. Result of interview, COMBINE validation survey - June 2011

Household and respondents	
Number of Households interviewed (N)	3871
Number of women age 15-49 years identified in the 3871 HHs (N)	4410
Mean number of women age 15-49 years per household (Mean)	1.14
Number of women who delivered after March 10, 2011 and identified (N)	370
Proportion of women who delivered after March 10, 2011 (%)	8.4
	359
Number of women who delivered after March 10, 2011 and interviewed (N)	
Response rate for women who delivered after March 10, 2011 (%)	97.0

3.2. Characteristics of women

We gathered few socio-demographic information of the women who delivered after March 10, 2011, as depicted in Table 2. These women were sampled from the three COMBINE project research zones, and the majority (58.8%) were sampled from Sidama zone (SNNP), followed by West Arsi and East Shoa zones of the Oromia region at 23.7% and 17.6%, respectively. The distribution of the sampled women follows the population density of these zones, as the study employed a PPS sampling procedure.

The mean age of respondent women was 25 years. Half of the women were in the age group 25-34 years, followed by younger women age 15-24 years at 41.2%. Only 5.3% comprises older women age 35-49 years. The noted age distribution is in the expected direction since the older women are less likely to have children in the previous 3-4 months due possible menopause and intentional child limiting behaviors.

The vast majority of the women (97.8%) were currently in union. The very few (2.2%) respondents were either divorced or widowed.

Most women (60.7%) did not have any formal education. The remaining 19.2%, 15.3% and 4.7% represented 1-4, 5-7 and 8 or higher graders, respectively. The noted education pattern is typical of most rural Ethiopia although this showed a slightly better education level than previous studies including the 2005 EDHS. One reason for the noted relatively better education level is due to the relatively higher proportion of women aged 15-24 years in the present study.

Islam and Protestantism were the two predominant religion denominations in the study areas. In Sidama the vast majority of the respondents (over 85%) were Protestants while over 83% of the respondents from East Shoa and West Arsi comprises Islam. In the whole, only 19.5% represents other religion denomination including Orthodox Christian.

Table 2. Proportion of women who delivered after March 10, 2011 according to selected characteristics (N=359), COMBINE validation study, June 2011

	%	N
Zone		
East Shoa- Oromia	17.6	63
West Arsi -Oromia	23.7	85
Sidama-SNNP	58.8	211
Age		
15-24	41.2	148
25-34	50.4	181
35-49	5.3	19
missing	3.1	11
Mean age	25.2	
Marital status		
Currently in union	97.8	349
Divorced/widowed	2.2	10
Education		
No formal schooling	60.7	218
1-4 grader	19.2	69
5-7 grader	15.3	55
8+ grader	4.7	17
Religion		
Muslim	30.1	108
Protestant	50.4	181
Others	19.5	70
Total	100.0	359

3.3. Characteristics of children

The reference date for the study was March 10, 2011. Data collection started on June 13, 2011 and extended through July 3, 2011. As a result the oldest child in our sample was 3 months & 24 days while the youngest was just a one day old newborn baby. As shown in Table 3, children were almost equally distributed across the 4 age categories - from 23.7%

for children age < 1month to 25.6%, 25.9% and 24.5%, respectively, for children age 1, 2, and 3 months. Of note, the age data are presented in completed months. The children included in this survey were almost equally divided by sex with 50.6% males.

It is important to note that this survey found 85 births during the previous 1 month in the entire 3871 households. This can be translated into a monthly delivery rate of 2.2% (*Confidence Interval (Binomial): 1.8%-2.7%*) in the COMBINE research sites, which can be used to estimate the expected (average) deliveries per month.

Information on the survival status of the children that were born after March 10, 2011 was also collected. Out of the 359 children, 16 were reported dead. This yields a 45/1000 death rate for children age 0-4 months old. It was not possible to estimate neonatal mortality rate from this data since the survey didn't ask about time of death. Of all deaths, the majority were born alive and later died (14 out of 16). Only 2 of the 16 reported born dead (Table 3).

Table 3. Selected characteristics of children born after March 10, 2011 (N=359), COMBINE validation survey - June 2011

	%	N
Age of the child born after March 10, 2011 (age in <u>completed</u> months)		
<1 month	23.7	85
1 month	25.6	92
2 months	25.9	93
3 months	24.5	88
Missing	0.3	1
Sex of the child born after March 10, 2011		
Male	50.6	181
Female	49.4	178
Survival status of the child born after March 10, 2011		
Still alive	95.5	343
Born alive later died	3.9	14
lost before full term of pregnancy	0	0
Born dead	0.6	2

3.4. Pregnancy home visit

The COMBINE program rests on the links between HEWs and volunteer female community volunteers (vCHWs) for identification of pregnancies and deliveries and for promotion of ANC, clean and safe delivery, and counseling on essential care to mothers and newborns during the postnatal period. Thus, pregnancy and postnatal home visits by vCHWs and HEWs are the central aspects of the program.

COMBINE identified some indicators to track program performance by vCHWs and HEWs during pregnancy home visits. These are (1) The proportion of pregnant women that were visited at home by vCHWs (2) The proportion of pregnant women that were visited at home by HEWs, and (3) The proportion of pregnant women who received at least 2 visits from vCHWs during pregnancy. The proportion is an estimate of “expected” deliveries calculated from past three years pregnancy history of women captured at the time of the baseline census 2008/9.

On the whole, 50% of the women were visited at home by vCHWs during pregnancy of the child that was born after March 10, 2011. The corresponding percentage for the home visit by HEWs was low at only 8.7% (Table 4). There was significant variation in the proportion that were visited by vCHWs during pregnancy by zone. Women in West Arsi were significantly more likely than those in the other two zones to have had a visit by vCHWs during pregnancy. About 73% of such women in West Arsi were visited by vCHWs during pregnancy; this was followed by 57.1% and 38.9%, respectively, in East Shoa and Sidama zones. There was however no significant variation by zone in the proportion of women who were visited during pregnancy by HEWs.

Table 3 also presents pregnancy home visit by vCHWs or HEWs in accordance with woman's age and education status as well as child's age. In the whole, there was no significant variation in pregnancy home visit either by vCHWs or HEWs in accordance with any of these socio-demographics attributes. In particular, the finding that the child's age is not associated with pregnancy home visit signifies stable coverage trend by vCHWs or HEWs over the previous 3-4 months.

Table 4. Among women who delivered after March 10, 2011, the proportion that were visited at home by vCHWs and HEWs during pregnancy according to selected characteristics, COMBINE validation survey - June 2011

	Visited by vCHW/HEW during pregnancy		
	vCHW %	HEW %	N
Zone			
East Shoa- Oromia	57.1	9.5	63
West Arsi -Oromia	72.9**	8.3	85
Sidama-SNNP	38.9	8.5	211
Age			
15-24	42.6	6.8	148
25-34	55.0	9.4	180
35-49	73.7	15.8	19
Missing	27.3	9.1	12
Education			
No formal schooling	52.1	6.9	217
1-4 grader	47.8	7.2	69
5-7 grader	45.4	14.5	55
8+ grader	47.1	17.6	18
Child's age			
<1 month	56.5	5.9	85
1 month	51.0	6.5	92
2 months	49.5	12.9	93
3 months	43.7	9.2	89
Total	50.0	8.7	359

**p<0.001

Figure 1 shows the pregnancy gestational age at the first visit by vCHWs and HEWs. Most women (62.8%) were visited by vCHWs for the first time during the second trimester of pregnancy and only 6% were visited at their first trimester and 21.7% at the third trimester. On the other hand, 16.1% of the women were visited by HEWs for the first time in their first trimester of pregnancy, followed by 29.1% and 45.2%, respectively, in the second and third trimester.

Figure 2 presents the distribution of gestational age at first visit by vCHWs by zone. The proportion of women that were visited in the second trimester of pregnancy by vCHWs was the highest in West Arsi at 81%, followed by East Shoa (69.4%) and the lowest in Sidama (47%).

Figure 1. Among women who delivered after March 10, 2011 and visited by vCHWs (n=180) and HEWs (n=32) during pregnancy, the percentage distribution of women according to gestational age at first visit by vCHWs or/and HEWs, COMBINE validation survey - June 2011

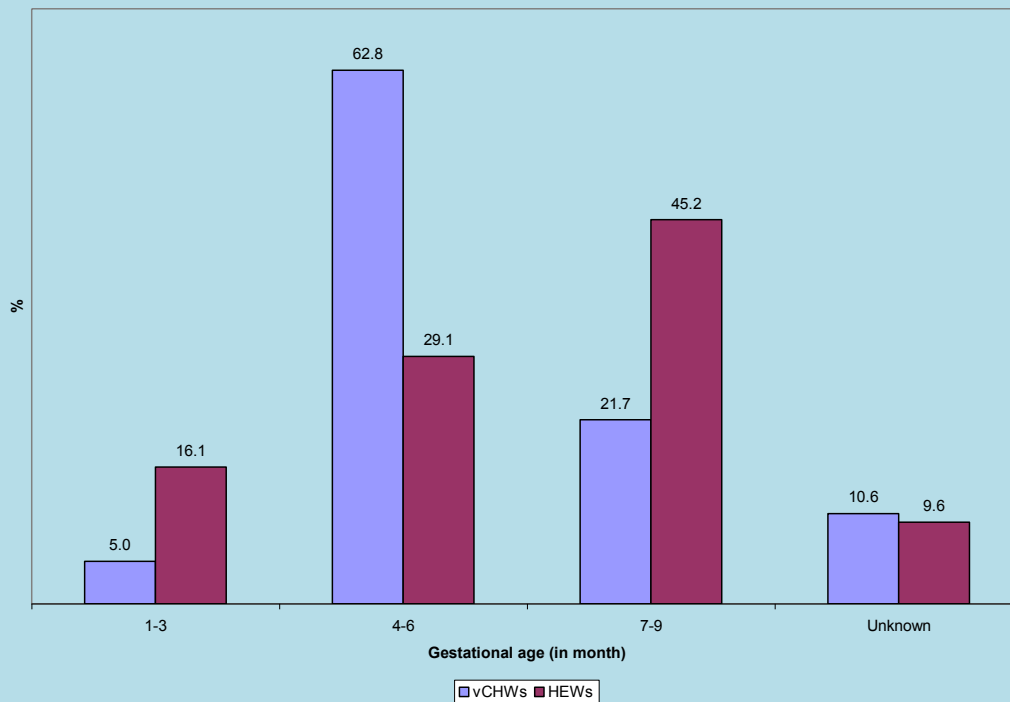
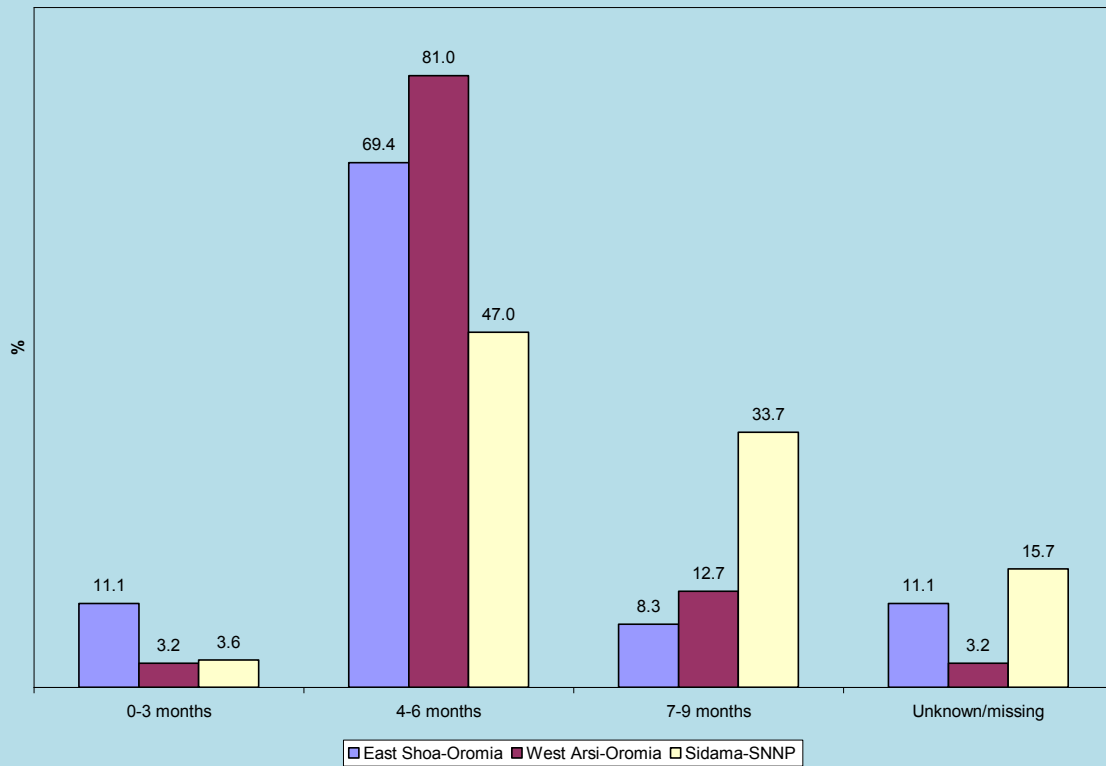
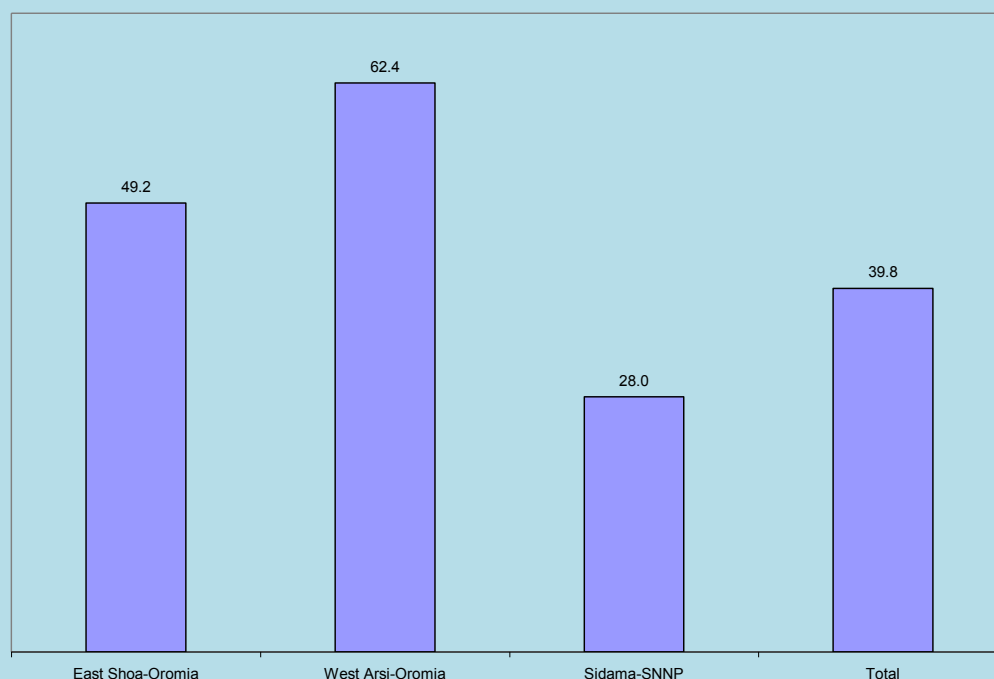


Figure 2. Among women who delivered after March 10, 2011 and visited by vCHWs during pregnancy (N=180) according to the gestational age at first visit, COMBINE validation survey - June 2011



The proportion of women who received 2 or more visit by vCHWs during pregnancy is shown in Figure 3. On the whole, about 40% of the women were visited 2 or more times during pregnancy by vCHWs. There was significant variation by zone, ranging from a low of 28% in Sidama to 49.2% and 62.4%, respectively, in East Shoa and West Arsi zones.

Figure 3. Among women who delivered after March 10, 2011, the proportion that were visited 2 or more time during pregnancy at home by vCHWs, COMBINE validation survey - June 2011



3.5. Information/IEC materials given during pregnancy home visit by vCHWs:

During pregnancy home visits, vCHWs provide family health book, sheet of barcode stickers, counsel the mother about pregnancy and birth preparedness, and fill forms that is later transmitted to the HEWs, among others.

Data collectors confirmed whether the mother received the book, sticker or a form was filled by showing samples as well as by asking the mothers to show the family health book as well as sticker. In the households visited by the vCHWs, 88.3% were given the family health book, 93.3% reported being counseled, 66.1% were given stickers and 73.3% said they saw the vCHWs filling a form (Table 5) .

Among the three zones, the receipt of such information/IEC/BCC materials was significantly better in West Arsi followed by East Shoa zone. Whilst Sidama appears to perform the least. In Sidama, only 36.6% of the women visited by vCHWs were given sheet of barcode stickers and 48.8% said they saw the vCHWs filling a certain form (sample form shown to the respondent). On the other hand, the provision of such materials and information reported by far better in the Oromia zones in the range of 89%-92% for sticker and 91.7%-95.2% for the reporting of vCHWs filling forms.

Table 5. Among women who delivered after March 10, 2011 and visited by vCHWs during pregnancy, the proportion that were visited during pregnancy at home by vCHWs and received different information from vCHWs, COMBINE validation survey - June 2011

Zone	Received the following from vCHWs during pregnancy home visit				N
	Book given	Counseled	Sticker Given	Filled form	
East Shoa- Oromia	91.7	94.4	88.9	91.7	36
West Arsi -Oromia	96.8**	96.8**	91.9**	95.2**	62
Sidama-SNNP	80.5	90.2	36.6	48.8	82
Total	88.3	93.3	66.1	73.3	180

**p<0.001

Women were also asked for any information they received from vCHWs during the first and second pregnancy home visits. First, they were asked to spontaneously respond to the question "*What did the volunteer community health worker do during her visit?*". The interviewers recorded the spontaneous unprompted responses. After awaiting unprompted responses, the interviewers then asked each of the questions that were not responded spontaneously. Table 6 presents the different information received by the women via the unprompted or prompted responses. In general, women reported to receive a range of information and counseling from vCHWs during the first and second visits. In both visits information that are critical for the health of the mother such as attendance of antenatal care, danger signs during pregnancy, use of ITN were given. Parallel with this mother also reported to receive important information for delivery and newborn care including birth planning, newborn baby danger signs, clean delivery, early initiation of breastfeeding, how to keep the cord clean, among others. It is also important to note that the information given about the newborn care at the second visit is more complete than the first. This is indeed in the expected direction. For instance, 73.9% said they were told about newborn baby danger sign at the first visit and the receipt of this same information increased to 91.8% at the second. Likewise, the proportion that were told about keeping the newborn warm increased from 74.4% at the first visit to 85.6% at the second. About 62% and 79.4%, respectively, were told to notify HEWs or vCHWs of delivery.

Table 6. Among women who delivered after March 10, 2011 and visited by vCHWs during pregnancy, the proportion that were given different information during the first and second visit (unprompted or prompted), COMBINE validation survey - June 2011

	First visit, N=180			Second visit, N=146		
	Unprompted	Prompted	Unprompted/ Prompted	Unprompted	Prompted	Unprompted/ Prompted
Attend Antenatal care	62.2	30.6	92.8	35.6	61.7	97.3
Danger signs (mother)	26.1	58.3	84.4	14.4	76.7	91.1
Danger signs (baby)	13.9	60.0	73.9	13.7	78.1	91.8
Birth plan	56.1	32.2	88.3	32.2	60.3	92.5
Clean delivery	48.9	38.3	87.2	29.5	66.4	95.9
To keep the baby warm	17.2	57.2	74.4	10.3	75.3	85.6
Early initiation of breast feeding	36.2	49.4	85.6	28.1	67.1	95.2
Exclusive breast feeding	38.9	49.4	88.3	30.8	65.8	96.6
Clean cord care	23.9	57.2	81.1	17.8	74.7	92.5
Hand washing	32.2	48.9	81.1	21.9	74.0	95.9
Use of ITN	12.8	42.2	55.0	9.6	71.2	80.8
Family planning	16.7	58.3	75.0	10.3	79.4	89.7
Notify HEW/vCHW of delivery	8.9	52.8	61.7	4.1	75.3	79.4

3.6. Antenatal care:

ANC refers to pregnancy-related health care provided by a health professional in a health facility.

In this survey, each woman who has a child after March 10, 2011 was initially asked whether she had gone for ANC check-up to a health institution when she was pregnant with the child. Next she was asked at which month of pregnancy she first went for an antenatal check-up and how many such visits she made. Table 7 shows that 53.2% reported to receive ANC during the most recent pregnancy. The number of antenatal care visits is important for the health and outcome of the pregnancy. However, data show only 13.7% of the women received 4 or more ANC visits during pregnancy.

Health posts reported to be the primary sources for antenatal care in both study areas. Of all the women who had ANC, 66% had their ANC check up in health posts at least once during pregnancy. Next to health posts, health centers reported the primary sources at 37.1%.

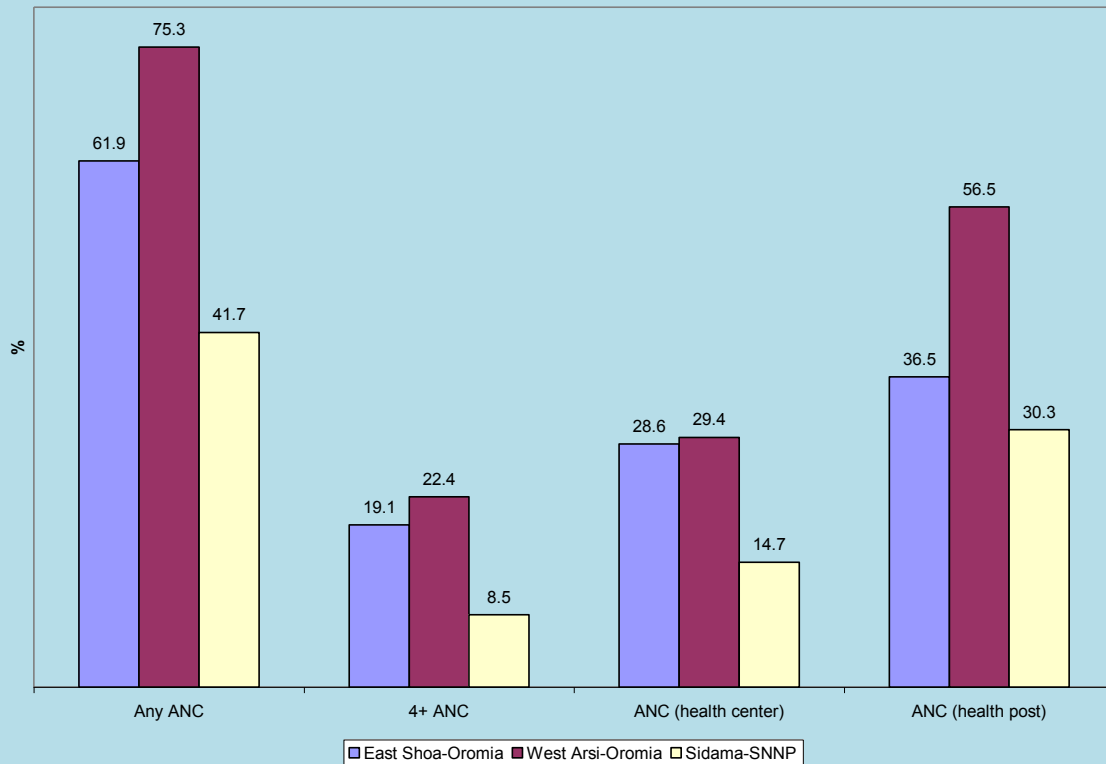
The timing of first ANC visit is also critical for good outcome. It is recommended that women initiated ANC as soon as they are pregnant. The majority (63%) initiated ANC visit at their second trimester of pregnancy. While 11% at their first and 22% at their third trimester of pregnancy.

Table 7. Among women who delivered after March 10, 2011, the proportion that had antenatal care (ANC) according to type of service provider, gestational age at first visit, and number of ANC visits, COMBINE validation survey - June 2011

	N=359
% Had at least one ANC for the last pregnancy	53.2
% Had 4 or more ANC visits	13.7
Among those who had ANC	N=191
	%
Place of ANC	
Health center	37.1
Health Post	66.0
Type of ANC service provider	
Doctor	0.5
Midwife	10.5
Nurse	26.7
Health Extension Worker	69.1
Other health Workers	2.1
Month of pregnancy at first ANC visit	
1-3 months	11.0
4-6 months	66.0
7-9 months	22.0
Missing	1.0
Number of ANC visits	
1	14.1
2	25.7
3	34.6
4+	25.1
Missing	0.5

ANC coverage variation is apparent by zone (Figure 4). Women in West Arsi were more likely than the two others to receive ANC. While Sidama women appeared the least likely to up take ANC. The proportion that had any ANC visit during pregnancy of the child born after March 10, 2011 was 75.3%, 61.9% and 41.7%, respectively, in West Arsi, East Shoa and Sidama zone. The receipt of adequate ANC visits (4+) was also the highest in West Arsi at 22.4% vis-à-vis the lowest at 8.5% in Sidama. Places of ANC also varies by zone. While 56.5% of the women in West Arsi had their ANC check up in health post, this was lower at 36.5% and 30.3%, respectively, in East Shoa and Sidama zone.

Figure 4. Among women who delivered after March 10, 2011, the proportion that had antenatal care (ANC), at least 4 ANC visits, received ANC in health center and health post by zone, COMBINE validation survey - June 2011



3.7. Delivery care

Women who have given birth after March 10, 2011 were asked where they delivered and who assisted them during the delivery. Overall, the vast majority of the births 95.3% took place at home (Table 8). Institutional delivery is reported at only 4.7%.

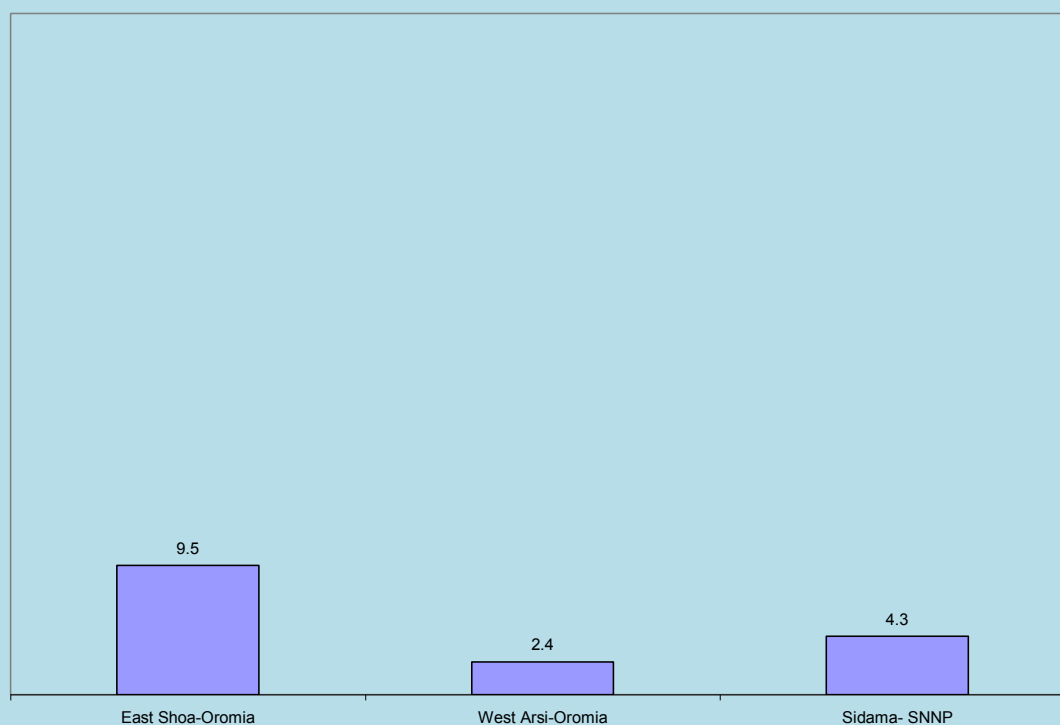
Table 8 also presents information on assistance during delivery. Professionally assisted delivery is extremely low in the study areas. In all, only 1.4%, 3.3% and 1.4%, respectively, were assisted by Medical doctors, Midwives and Nurses. Health Extension Workers reported to have assisted only a tiny portion of the women at 0.6%. Another 11.7% were attended by traditional birth attendants and about 9% by vCHWs. Whereas the majority (70.5%) by relatives, friends or neighbors.

As shown in Figure 5, there was some variation in the proportion of institutional delivery by zone - 9.5% in East Shoa, 2.4% in West Arsi and 4.3% in Sidama.

Table 8. Among women who delivered after March 10, 2011, the proportion that delivered in the health institution, at home and received assistant during delivery, COMBINE validation survey - June 2011

	N=359
% Institutional delivery	4.7
% Home delivery	95.3
Assistance during delivery	
Doctor	1.4
Midwife	3.3
Nurse	1.4
Health Extension Worker	0.6
Traditional Birth Attendant	11.7
Relatives/friends	70.5
vCHWs	8.9
Others	5.8

Figure 5. Among women who delivered in the previous 3 months, the proportion that had institutional delivery by zone COMBINE validation survey - June 2011



3.8. Postnatal care home visit

Postnatal care (PNC) home visit by vCHWs and HEWs is by far the most important aspect of the COMBINE program intervention. Here we looked at the following programmatic indicators: (1) proportion of women that were visited by vCHWs or HEWs in the first week of delivery (2) proportion of women that were visited by vCHWs or HEWs within 2 days

after delivery, and (3) proportion of women who were visited 3 or more time after delivery by vCHWs.

PNC visit in the first week of delivery:

In all, 35.3% of the women who delivered after March 10, 2011 were visited by vCHWs within a week of delivery. There was significant variation in this indicator by zone, ranging from a low of 26.9% in Sidama to 40% and 52.4%, respectively, in East Shoa and West Arsi zones (Table 9). The Health Extension Workers reported to visit only 9% of the women during the first week of delivery. Visit by HEWs was in particular the lowest at 6.1% in West Arsi though not significantly as compared to 10% for the other zones. Postnatal care visit either by vCHWs or HEWs in the first week of delivery was reported at 37.3% and the noted zonal variation holds at 53.7%, 41.7% and 29.4%, respectively, in West Arsi, East Shoa and Sidama zones.

Of note, there was no significant variation in the proportion of women who had PNC home visit either by vCHWs or HEWs in accordance with women's age, educational status and child's age (Table 9).

Table 9. Among women who delivered after March 10, 2011, the proportion that were visited by vCHWs and HEWs in the first week after delivery, according to selected characteristics, COMBINE validation survey - June 2011

	Visited by vCHWs or HEWs in the first week after delivery			N@
	Visited by:			
	VCHW	HEW	vCHW or HEW	
Zone				
East Shoa- Oromia	40.0	10.0	41.7	60
West Arsi -Oromia	52.4**	6.1	53.7**	82
Sidama-SNNP	26.9	10.0	29.4	201
Age				
15-24	32.6	8.0	34.8	138
25-34	36.4	10.2	38.6	176
35-49	42.1	5.3	42.1	19
missing	40.0	10.0	40.0	10
Education				
No formal schooling	34.3	7.5	35.7	213
1-4 grader	43.5	6.4	46.8	62
5-7 grader	30.2	17.0	34.0	53
8+ grader	33.3	13.3	33.3	15
Child's age (in completed month)				
<1 month	31.4	1.4	31.4	70
1-2 months	45.6	8.7	47.8	92
2-3 months	34.8	15.2	39.1	92
3-4 months	28.4	9.1	29.5	89
Total	35.3	9.0	37.3	343

**p<0.001, @infants age under 7 days excluded

PNC visit within 2 days after delivery:

Within 2 days after delivery 25.1% of the women reported to be visited by vCHWs - 43.5% in West Arsi, 24.6% in East Shoa and 17.7% in Sidama. Only 3.1% of the women were visited by HEWs during the same period and the proportion that were visited either by vCHWs or HEWs within 2 days of delivery was 26.5%.

Taken together, there was no variation in the proportion of women who were visited within 2 days of delivery by the age and educational status of women as well as the child's age.

Table 10. Among women who delivered after March 10, 2011, the proportion that were visited by vCHWs or HEWs in the first 2 days after delivery according to selected characteristics, COMBINE validation survey - June 2011

Zone	Visited by vCHWs or HEWs in the first 2 days after delivery			N@
	vCHW	HEW	vCHW or HEW	
East Shoa- Oromia	24.6	1.6	26.2	61
West Arsi -Oromia	43.5**	4.7	44.7**	85
Sidama-SNNP	17.7	2.9	19.1	209
Age				
15-24	27.6	4.1	29.7	145
25-34	22.6	2.8	23.8	181
35-49	21.0	0.0	21.0	19
missing	40.0	0.0	40.0	10
Education				
No formal schooling	24.0	1.4	24.4	217
1-4 grader	31.3	1.5	31.3	67
5-7 grader	21.8	9.1	27.3	55
8+ grader	25.0	12.5	31.2	16
Child's age (in completed month)				
<1 month	28.1	2.4	29.3	82
1-2 months	30.4	2.2	31.5	92
2-3 months	22.8	3.3	23.9	92
3-4 months	19.3	4.5	21.6	89
Total	25.1	3.1	26.5	355

**p<0.001, @ infants age under 2 days excluded

Three or more PNC visit by vCHWs within a week of delivery:

Table 11 reveals only 9.3% of the women received three or more visits from vCHWs within a week of delivery. Likewise, women in West Arsi (19.5%) were significantly more likely than those from East Shoa (10%) and Sidama (5%) zones to receive 3 visits within a week after delivery. Although there was some increasing trend in the proportion of women who received 3 or more visits from a vCHWs after delivery by age this was not statically

significant. Similarly, there was no variation in this particular indicator either by women's education or child's age.

Table 11. Among women who delivered after March 10, 2011, the proportion that were visited by vCHWs at least 3 times in the first week of delivery, according to selected characteristics, COMBINE validation survey - June 2011

Zone	3 visits by vCHWs in the first week after delivery	
	vCHW (3 visits)	N@
East Shoa- Oromia	10.0	60
West Arsi -Oromia	19.5*	82
Sidama-SNNP	5.0	201
Age		
15-24	8.0	138
25-34	9.1	176
35-49	21.0	19
missing	10.0	10
Education		
No formal schooling	8.9	213
1-4 grader	12.9	62
5-7 grader	7.5	53
8+ grader	6.7	15
Child's age (in completed month)		
<1 month	7.1	70
1-2 months	14.1	92
2-3 months	7.6	92
3-4 months	7.9	89
Total	9.3	343

*p<0.01, @ infants age under 7 days excluded

3.9. Information/services given during PNC home visit

Women are expected to receive important information on newborn care as well as their own health during PNC home visits by HEWs and vCHWs. This visit also provides opportunity to check the newborn and mother for any danger signs and referring those in need of further medical attention.

Women were asked to report the information they received including any checkup for the newborn and their own during PNC home visit by vCHWs and HEWs. As shown in Table 12, most women (67%-88%) reported (unprompted or prompted) to receive a range of information during PNC home visit by vCHWs that include on how to keep the baby born,

delay bathing for 24 hours, avoid putting anything on the umbilical cord, about exclusive breastfeeding, dangers signs in newborns and mothers.

On the other hand, the provision of services such as checking newborn babies and mothers for danger signs including referral of sick children by vCHWs reported to be relatively less practiced. Only 37.7% of the women reported that they were checked for any danger sign by the vCHWs. A similarly low percentage (34.6%) reported their newborn was checked for danger sign. The proportion of women that said a vCHW referred their sick babies was 23.9%.

The small number of mothers (n=32) that were visited by HEWs in the first week of delivery also reported receiving a range of information and services. Akin to the information received from vCHWs most women were given important information on how to care the newborn's and their own health by the HEWs. On the other hand, most of these women and their newborns were not checked for danger signs by the HEWs. It was reported that 40.6% of the women were checked for danger signs while this was even lower at 21.9% for newborn babies.

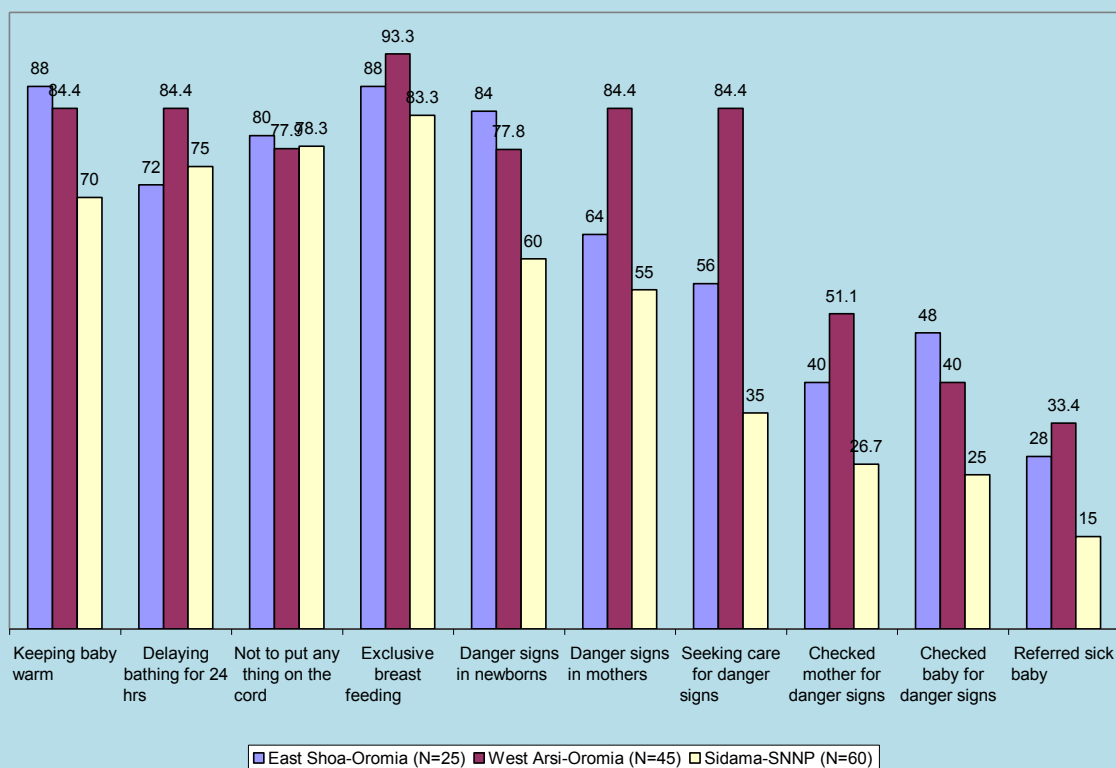
The relatively lower reporting of vCHWs and HEWs checking mothers and newborns for danger signs represents a real missed opportunity as this an important aspect of the intervention that will have a direct impact timely care seeking for newborns with symptoms of serious illness.

Figure 6 compares the provision of this information/services by vCHWs to the women across the three zones. On the whole, vCHWs in West Arsi and East Shoa zones appeared to perform much better than Sidama in delivering this different information and services to the women during PNC home visits. In particular, checking women and the newborn babies for danger signs were rarely practiced in Sidama zone at 26.7% and 25%, respectively. The corresponding figures in the Oromia zones ranged between 40-51%.

Table 12. Among women who delivered after March 10, 2011 and visited at home by vCHWs after delivery, the proportion that were given different information (unprompted or prompted) from vCHWs and HEWs during home visit after delivery, COMBINE validation survey - June 2011

	First visit, N=130			Second visit, N=32		
	Unprompted	Prompted	Unprompted/ Prompted	Unprompted	Prompted	Unprompted/ Prompted
Keeping baby warm	36.2	42.3	78.5	28.1	40.7	68.8
Delaying bathing for 24 hrs	51.5	26.2	77.7	53.1	18.8	71.9
Not to put any thing on the cord	29.2	49.3	78.5	18.7	46.9	65.6
Exclusive breast feeding	60.0	27.7	87.7	43.8	40.6	84.4
Danger signs in newborns	12.3	58.5	70.8	18.8	43.7	62.5
Danger signs in mothers	12.3	54.6	66.9	12.5	43.7	56.2
Seeking care for danger signs	9.2	47.0	56.2	21.9	34.3	56.2
Checked mother for danger signs	3.1	34.6	37.7	9.4	31.2	40.6
Checked baby for danger signs	3.8	30.8	34.6	9.4	12.5	21.9
Referred sick baby	4.6	19.3	23.9	3.1	15.6	18.7

Figure 6. Among women who delivered after March 10, 2011 and visited at home by vCHWs after delivery, the proportion that were given different information (unprompted or prompted) by zone, COMBINE validation survey - June 2011



3.10. Essential newborn care practices

In this section we present few but key essential newborn care practices including hygiene during delivery, keeping the baby warm and early initiation of breast-feeding (Table 13).

It is highly recommended to use sterile instrument to cut and tie the umbilical cord. Data show the vast majority of the mothers (99.3%) reported that they had used new/boiled blade to cut the cord. Knife/Scissors of unknown status was reported by 4.4% among the materials used to cut the cord.

Any dressing applied to umbilical cord is considered unhygienic and unhealthy practice. Women were asked if they had applied any dressing to the umbilical cord for their most recent delivery. The stump of umbilical cord was left undressed in 77.2% of the babies. Butter was applied to only 5.6% of babies' cord. About 4% said they put powder/ointment on the umbilical cord and 10% didn't know whether or not something was applied to the cord.

According to the WHO⁸, bathing the newborn soon after birth causes a drop in the baby's body temperature and is not necessary. If cultural tradition demands bathing, this should not be carried out before 6 hours after birth, and preferably on the second or third day of life so long as the baby is healthy and its temperature is normal. About a third of the babies (34.3%) reported bathed before 6 hours. Delay bathing after 1 day is highly recommended and the data shows 26.5% delayed first bathing for 1 day or more.

Early initiation of breastfeeding i.e. within 1 hour of birth is fairly high at 64.1%.

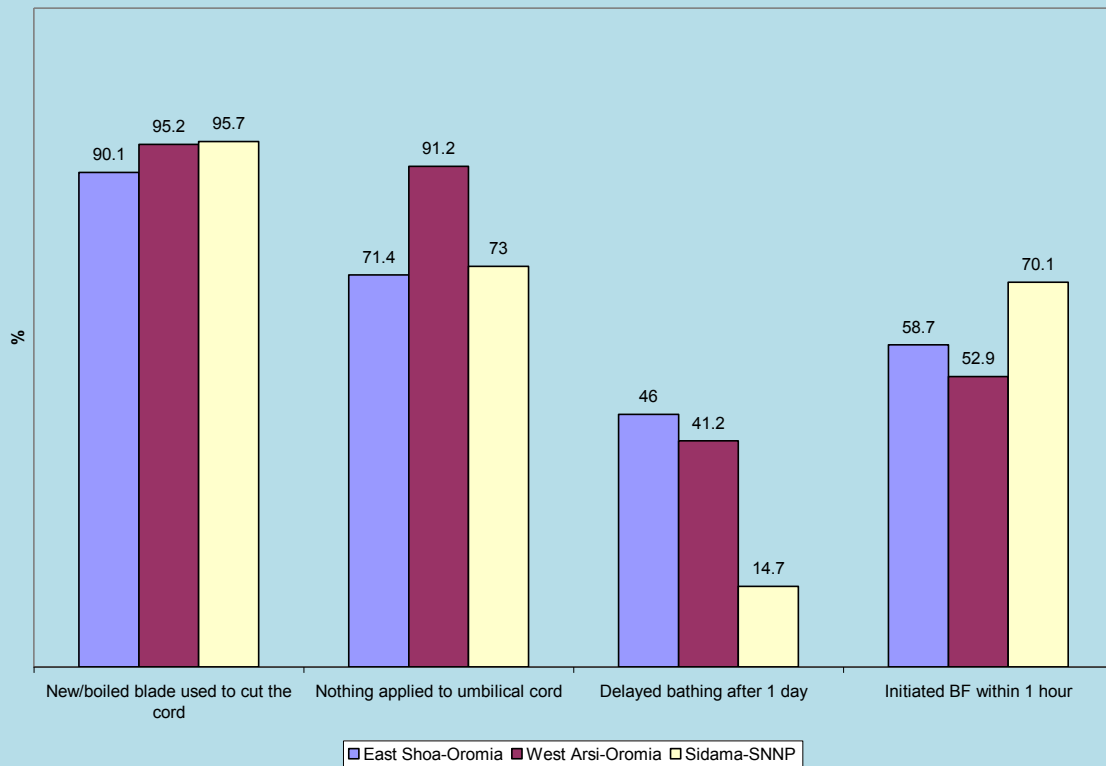
While the three zones compares well in terms of the use of new/boiled blade to cut the umbilical cord, they differed notably in the other practices as shown in Figure 7. The proportion that didn't apply any dressing to the umbilical cord was the highest in West Arsi at 91.2%, followed by 73% in Sidama and 71.4% in East Shoa. Delayed bathing after 1 day was also varied significantly by zone the highest being in East Shoa at 46%; this was followed by 41.2% in West Arsi. On the other hand only 14.7% of the women reported delayed bathing after 1 day in Sidama. Early initiation of breastfeeding was the highest in Sidama at 70.1%, followed by 58.7% and 52.9%, respectively, in West Arsi and East Shoa zones.

Table 13. Proportion of women who delivered after March 10, 2011 according to instruments used to cut and tie the cord, timing of bathing and the timing of initiation of breastfeeding, COMBINE validation survey - June 2011

	%
	N=359
Instrument used to cut the cord	
New/boiled blade used to cut the cord	93.3
Used blade	0.3
Knife/Scissor (status unknown)	4.4
Do not know/missing	2.0
Dressing applied to umbilical cord	
Nothing	77.2
Butter	5.6
Ointment/powder	3.9
Others	3.3
Unknown	10.0
Time to first bathing:	
<6 hours	34.3
6-12 hours	5.6
12-24 hours	29.8
After 1 day	26.5
Do not know/missing	3.9
Initiated breastfeeding within 1 hour of birth	64.1

⁸ World Health Organization: Essential newborn care. Report of a technical working group (Trieste, 25–29 April 1994). Geneva: WHO, Division of Reproductive Health (Technical Support); 1996.

Figure 7. Proportion of women who delivered in the previous 3 months according to instruments used to cut and tie the cord, timing of bathing and the timing of initiation of breastfeeding by zone, COMBINE validation survey - June 2011



IV. CONCLUSION AND RECOMMENDATIONS

This study was set out to validate the coverage of pregnancy and postnatal care home visits by vCHWs and HEWs for the COMBINE program intervention. Below is the key findings emerging from the survey and selected recommendations.

The real-time vs. the external validation survey indicators:

Although comparison of the survey data with the real-time surveillance is challenging due to a number of methodological differences, comparable results from the two sources often boosts confidence on the accuracy of the indicator estimates via either of the approaches. On the other hand, it is problematic when the two sources yield differing results with confidence intervals that do not overlap. In which case there is no single silver bullet to resolve the problem.

Our external validation exercise found lower coverage estimates for almost all indicators of interest compared to the real-time estimates. For instance, this survey put PNC home visit within a week of delivery in the range of 27%-52% while the corresponding values were in the range of 51-64%⁹ in the real-time data. Likewise, the receipt of PNC visit within 2 days of delivery was lower in the validation survey ranging from 18%-44% while this was 43%-62%¹⁰ in the real-time based estimates. The validation survey indicators thus fall in the lower bound of the real-time based estimates. Although it is unknown where the true coverage rates may fall, the noted big differences between the two data sources raises questions on the accuracy of the real-time based estimates, as the external validation survey was originally designed to validate the real-time data. It should be emphasized, however, that we are not suggesting here that the external validation survey is a gold standard and that it is free from any biases. The validation survey can also be subjected to the obvious limitations of cross-sectional surveys.

- **As it continues to be the main source of information for the project, it is highly recommended that the real-time surveillance system is appraised for its accuracy and validity by looking at the process of data generation, reporting, data capturing, denominators used, and the way the indicators are computed, among others.**

Zonal variation in coverage indicators:

The reporting domain for this study was the entire COMBINE research sites and the sample size was computed to provide estimate at that level. Nevertheless, with the caveat of the methodological limitations of generating separate indicator estimates at zonal level, a further look at the data points to significant variation in coverage by zone with West Arsi performing the best while Sidama the least in terms of vCHWs coverage in pregnancy and postnatal home visits. Parallel with this some of the outcome indicators including ANC use and essential newborn care indicators such as delayed bathing after 1 day and the application of dressing on the umbilical cord were also found to be relatively the least practiced in Sidama zone. A multivariate analysis further points to the significant effect of pregnancy home visit by vCHWs on these outcome indicators (data not shown).

⁹ Source: COMBINE project- Real time data - coverage for June 2011 (data obtained on July 13, 2011)

¹⁰ Ibid

As a result of the relatively lowest coverage of most of the indicators of interest in Sidama, the real-time and the survey-based estimates deviated from one another most significantly in Sidama than elsewhere.

- **The noted wide gap between the two data sources in Sidama may entail a through investigation of the real-time surveillance process including program implementation and monitoring aspects of the project in Sidama zone. The good practices in West Arsi, which happens to be the best performing zone according to findings of this survey, can be used as important input to enhance project performance.**

Information/services provided during pregnancy and PNC home visits:

Home visits during pregnancy and after delivery by vCHWs or HEWs create a real opportunity to provide information and services to the mother and newborn. It is expected that vCHWs and HEWs provide a complete and quality information during home visits. However, this may not always be the case. Our survey data unravels a substantial missed opportunity during home visits, especially in Sidama zone. For instance, of those women visited during pregnancy only 36% were given sheet of barcode stickers and less than 50% said the vCHWs filled a form. Only about a quarter of the women in Sidama reported that the vCHW and HEWs checked their newborns and themselves for danger signs during the PNC home visit. In the whole sample only 40.6% and 21.9% of the mothers and newborns, respectively, were checked for danger signs during PNC home visit by HEWs.

- **Program may need to devise ways to monitor and track the completeness and quality of information and services provided by vCHWs and HEWs to the women and newborns during home visits.**

The gap in coverage between vCHWs and HEWs:

In all the indicators of interest that are related to pregnancy as well as PNC home visits this survey noted a huge gap in coverage between vCHWs and HEWs - for pregnancy home visit (50% by vCHWs vs. 8.7% by HEWs) and for PNC home visit (35.3% by vCHWs vs. 9% by HEWs). It is understandable that some gaps in coverage can exist, as the HEWs are involved in several competing activities. Nevertheless, the noted wide gap is difficult to comprehend as the COMBINE program heavily rests on the link and coordination between vCHWs and HEWs.

- **It is therefore imperative that program improves the linkage between HEWs and vCHWs and devices ways to enhance HEWs active involvement and home visits during pregnancy and in the first week after delivery.**

Use of survey data to improve denominators for the real-time estimates:

The denominator used to estimate the real-time indicators is based on projection made on expected number of deliveries in each of the research sites. Our survey provide useful data that can be used to validate and also improve the denominator for the real-time based indicators. In the 3871 households included in this survey, the proportion of households with a delivery in the previous one month was 2.2% (*Confidence Interval (Binomial): 1.8%-2.7%*).

- **This information can be used to estimate the expected (average) number deliveries per month in the COMBINE research sites in conjunction with the information on the total number of households.**

ANNEX 1. LIST OF SELECTED SURVEY INDICATORS

Indicators	%, n
Percentage of households who had at least one live birth in the previous 1 month (95% CI, binomial)	2.2%, n=3871 (CI: 1.8%-2.7%)
Death rate (per 1000) of children under 4 months old	45 per 1000, n=359
Percentage of women who delivered after March 10, 2001 that were visited by vCHWs during pregnancy (95% CI, binomial)	50%, n=359 (CI: 44.8%-55.4%)
Percentage of women who delivered after March 10, 2001 that were visited by HEWs during pregnancy (95% CI, binomial)	8.7%, n=359 (CI: 5.9%-12.0%)
Percentage of women who delivered after March 10, 2001 that were visited by vCHWs at least 2 times during pregnancy	39.8%, n=359
Among women who were visited by vCHWs during pregnancy, the proportion that were given family health book	88.3%, n=180
Among women who were visited by vCHWs during pregnancy, the proportion that were counseled	93.3%, n=180
Among women who were visited by vCHWs during pregnancy, the proportion that were given sheet of barcode sticker	66.1, n=180
Percentage of women who delivered after March 10, 2001 that were visited by vCHWs within a week of delivery (95% CI, binomial)	35.3%, n=343 (CI: 30.2-40.5)
Percentage of women who delivered after March 10, 2001 that were visited by HEWs within a week of delivery (95% CI, binomial)	9%, n=343 (CI: 6.2-12.6)
Percentage of women who delivered after March 10, 2001 that were visited by vCHWs within in 2 days of delivery (95% CI, binomial)	25.1%, n=355 (CI: 20.6-29.9)
Percentage of women who delivered after March 10, 2001 that were visited by HEWs within 2 days of delivery (95% CI, binomial)	3.1%, n=355 (CI: 1.5-5.4)
Percentage of women who delivered after March 10, 2001 that were visited by vCHWs 3 or more times within a week of delivery (95% CI, binomial)	9.3%, n=343 (CI: 6.4-12.9%)
Percentage of women who delivered after March 10, 2001 that had at least one ANC visit during pregnancy	53.2%, n=359
Percentage of women who delivered after March 10, 2001 that had 4 or more ANC visits during pregnancy	13.7%, n=359
Percentage of women that delivered in health institution	4.7%, n=359
Percentage of women that were assisted by health professionals	6.1%, n=359
Among women who were visited by vCHWs in the first week of delivery, the proportion that were checked for danger sign by the vCHW	37.7%, n=130
Among women who were visited by vCHWs in the first week of delivery, the proportion of women whose newborns were checked for danger sign by the vCHW	34.6%, n=130
Percentage of women who delivered after March 10, 2001 that used new/boiled blade to cut the umbilical cord	93.3%, n=359
Percentage of women who delivered after March 10, 2001 that did not apply any dressing to the umbilical cord	77.2%, n=359
Percentage of women who delivered after March 10, 2001 that delayed first bathing of the newborn after 1 day	26.5%, n=359
Percentage of women who delivered after March 10, 2001 that initiated breastfeeding within 1 hour of birth	64.1%, n=359

ANNEX 2: QUESTIONNAIRES

Module I: Screener For Recently Delivered Women

INFORMATION/INTRODUCTION

Hello. My name is _____ and I am working with COMBINE Project in partnership with the Regional Health Bureau and Woreda Health Office. We are conducting a survey to see whether the project is being successful in identifying and contacting pregnant mothers. We would very much appreciate your participation in this survey. The survey usually takes between 5 and 10 minutes to complete. As part of the survey we would first like to ask some questions about your household in general and any births in the past three months in particular. All of the answers you give will be confidential. Participation in the survey is completely voluntary. If we should come to any question you don't want to answer, just let me know and I will go on to the next question; or you can stop the interview at any time. However, we hope you will participate in the survey since your views are important.

If you have any question regarding the survey you can call (Name and responsibility) _____ on the following number: _____

At this time, do you want to ask me anything about the survey?

CERTIFICATE OF CONSENT

The foregoing information has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study and understand that I have the right to withdraw from the interview at any time without in any way affecting my medical care or other benefits as a resident of the community. I have been given with the name and address of a researcher who can be easily contacted.

May I begin the interview now? Yes [] No []

Time start of interview [T1]: ____:____ Time interview ends [T2]: ____:____

RESULT OF INTERVIEW

Date of interview: ___ / ___ / ___

Interviewer name: _____

Interviewer code.: ___

Result: _____

Result codes

1 = Completed

2 = No HH member at home or no mentally competent
HH member at home

3 = HH totally absent for an extended period

4 = Deferred

5 = Refused

6 = Dwelling empty

7 = Dwelling could not be found

8 = Other (specify) : _____

[TO BE SIGNED AFTER INTERVIEW IS COMPLETED]Name & Signature of interviewer:

Name _____ Code of interviewer []

Signature _____ Date: ___/___/_____

Name & Signature of supervisor:

Name _____ Code of supervisor []

Signature _____ Date: ___/___/_____

Name & Signature of coordinator:

Name _____ Code of coordinator []

Signature _____ Date: ___/___/_____

I. AREA AND HOUSEHOLD IDENTIFICATION

This questionnaire is to be administered to the head of the household if available or another adult in the household if the head is not available.	
S101	a. Region name _____ b. Region code [] Oromia=1 SNNP =2
S102	a. Zone name _____ b. Zone code [][]
S103	a. Woreda name _____ b. Woreda code [][]
S104	a. Health center/cluster name _____ b. Health center/cluster code [][][]
S105	a. Kebele name _____ b. Kebele code [][][]
S106	a. Gasha name _____ b. Gasha code [][][]
S107	a. Name of household head _____ b. Household code [][][]

II. WOMEN 15-49 YEARS IDENTIFICATION

S201	Is there a woman who is between 15 and 49 years of age in this household?	Yes.....1 No.....2	→ END
S202	If yes to S201, how many women between 15 and 49 years of age?	No. of women (15-49 yrs)_____	

III. ELIGIBLE RESPONDENT IDENTIFICATION (DELIVERED IN THE PREVIOUS 3 MONTHS)

LINE NO.	S301 Name of the women age 15-49 years	S302 How old is (name)? (age in completed years)	S303 Does (name) have children? Yes=1 No=2	S304 Is (name) usually live here? Yes=1 No=2	S305 Has (name) given birth in the last 3 months (i.e. since <i>Megabit</i> 1)? Yes=1 No=2	S306 Is the baby still alive ? Yes=1 No=2	S307 Name of the child born in the previous 3 months	S308 Age of the child in months (if less than one month write "0") [Check if the age is 3 months or younger]	S309 Circle the line number below if the women gave birth in the last 3 months (check S305)
			If "No" go to the Next women	If "No" go to the Next women		If "No" go to S309			
01								[]	01
02								[]	02
03								[]	03
04								[]	04

S310. Total number of eligible women in the household (check S309) _____

INSTRUCTION:

If the total number of eligible women is "0", go to the next household

If the total number of eligible women is "1 or higher", interview all eligible women using Module II

COMBINE Project, May 2011

Module 2: Questionnaire for women who had a delivery in the past three months

INFORMATION/INTRODUCTION

Hello. My name is _____ and I am working with COMBINE Project in partnership with the Regional Health Bureau and Woreda Health Office. We are conducting a survey to see whether the project is being successful in identifying and contacting pregnant mothers. We would very much appreciate your participation in this survey. The survey usually takes between 5 and 10 minutes to complete. As part of the survey we would first like to ask some questions about your household in general and any births in the past three months in particular. All of the answers you give will be confidential. Participation in the survey is completely voluntary. If we should come to any question you don't want to answer, just let me know and I will go on to the next question; or you can stop the interview at any time. However, we hope you will participate in the survey since your views are important.

If you have any question regarding the survey you can call (Name and responsibility) _____ on the following number: _____

At this time, do you want to ask me anything about the survey?

CERTIFICATE OF CONSENT

The foregoing information has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study and understand that I have the right to withdraw from the interview at any time without in any way affecting my medical care or other benefits as a resident of the community. I have been given with the name and address of a researcher who can be easily contacted.

May I begin the interview now? Yes [] No []

Time start of interview [T1]: ____:____ Time interview ends [T2]: ____:____

RESULT OF INTERVIEW

Date of interview: ___ / ___ / ___ Interviewer name: _____ Interviewer code.: ___ Result: _____	Result codes 1 = Completed 2 = Women deferred 3 = Women refused 4 = Women couldn't be found 5 = Other (specify) : _____
-----------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------

[TO BE SIGNED AFTER INTERVIEW IS COMPLETED]

<u>Name & Signature of interviewer:</u> Name _____ Code of interviewer [] Signature _____ Date: ___/___/_____ <u>Name & Signature of supervisor:</u> Name _____ Code of supervisor [] Signature _____ Date: ___/___/_____ <u>Name & Signature of coordinator:</u> Name _____ Code of coordinator [] Signature _____ Date: ___/___/_____

I. AREA AND HOUSEHOLD IDENTIFICATION

This questionnaire is to be administered to the women who had delivery in the previous 3 months (since Megabit 1, 2003)	
Q101	a. Region name _____ b. Region code [] Oromia=1, SNNP =2
Q102	a. Zone name _____ b. Zone code []
Q103	a. Woreda name _____ b. Woreda code []
Q104	a. Health center/cluster name _____ b. Health center/cluster code []
Q105	a. Kebele name _____ b. Kebele code []
Q106	a. Gasha name _____ b. Gasha code []

II. MOTHER AND CHILD INFORMATION

Q201	<u>INSTRUCTION TO INTERVIEWER: TO BE COPIED FROM MODULE 1</u> a. Name of household head _____ b. Household code []
Q202	<u>INSTRUCTION TO INTERVIEWER: TO BE COPIED FROM MODULE 1</u> [QUESTION S301 & S309] a. Name of the women _____ b. Women's line number []
Q203	<u>INSTRUCTION TO INTERVIEWER : TO BE COPIED FROM MODULE 1</u> [QUESTION S307] Name of the child born in the previous 3 months _____
Q204	<u>INSTRUCTION TO INTERVIEWER : TO BE COPIED FROM MODULE 1</u> [QUESTION S308] Age of (name): _____Months (if less than 1 month write "0")
Q205	Date of birth of (Name): Eth. calendar (DD/MM/YYYY) ____/____/____
Q206	Sex of (name): 1=Male 2=Female
Q207	Is (name) still alive? 1=Yes 2=No

III. RESPONDENT CHARACTERISTICS

Q301	In what month and year were you born?	<p>Month [____ ____] Don't know month.....98</p> <p>Year [____ ____ ____ ____] Don't know year.....9998</p>	
Q302	How old are you? Compare and correct Q301 and/or Q302 if inconsistent	<p>Age in completed years [____ ____] Don't know.....98</p>	
Q303	What is your current marital status?	<p>Married/Living together.....1 Formerly Married (divorced, widowed).....2 Never Married.....3</p>	
Q304	Have you ever attended school?	<p>Yes 1 No 2→</p>	→Q306
Q305	What is the highest class you completed	Grade completed [____ ____]	
Q306	What is your religion?	<p>Orthodox.....1 Catholic.....2 Protestant.....3 Moslem.....4 Other.....5 Specify _____</p>	

IV. PREGNANCY HOME VISIT BY HEWS/CHPS

Now I would like to ask you some questions about services you may have received during your pregnancy with [NAME]

Q401	Did you see anyone for antenatal care for your last pregnancy?	<p>Yes 1 No 2→</p>	→Q406
Q402	IF YES: Whom did you see? Anyone else? PROBE TO IDENTIFY EACH TYPE OF PERSON AND RECORD ALL MENTIONED	<p>Mentioned: <u>Yes</u> <u>No</u></p> <p>HEALTH PERSONNEL</p> <p>a) Doctor1 2 b) Midwife.....1 2 c) Nurse.....1 2 d) Health extension worker...1 2 e) Health worker unknown type.....1 2</p> <p>OTHER PERSON</p> <p>f) Traditional Birth Attendant.....1 2 g) Other..... 1 2</p> <p>Others, Specify _____</p>	
Q403	Where did you receive antenatal care? Anywhere else? Probe to identify type(s) of source(s) and	<p>Mentioned: <u>Yes</u> <u>No</u></p> <p>HOME</p>	

	<p>circle the appropriate code(s).</p> <p>If unable to determine if a hospital, health center, or clinic is public or private medical, write the name of the place.</p> <p>_____</p> <p>(Name of place(s))</p> <p>_____</p> <p>(Name of place(s))</p>	<p>a) Your home1 2</p> <p>b) Other home1 2</p> <p style="text-align: center;">PUBLIC SECTOR</p> <p>c) Govt. Health center 1 2</p> <p>d) Govt. Health post. 1 2</p> <p>e) NGO Clinic.1 2</p> <p>f) Other.1 2</p> <p>Others, Specify _____</p>	
Q404	How many months pregnant were you when you first received antenatal care?	<p>_____ Months</p> <p>Do not know.98</p>	
Q405	How many times did you receive antenatal care during pregnancy?	<p>_____ Number of times</p> <p>Do not know.98</p>	
Q406	<p>During your pregnancy did any health care provider or volunteer community health worker visit you at home?</p> <p>PROBE: Any visits where the health care provider or vCHW came to your home to talk, provide counseling?</p>	<p>Yes.1</p> <p>No.2 →</p>	→Q501
Q407	<p>IF YES: Who visited you?</p> <p>Anyone else?</p> <p>PROBE TO IDENTIFY EACH TYPE OF PERSON AND RECORD ALL MENTIONED</p>	<p style="text-align: right;">Mentioned:</p> <p style="text-align: right;"><u>Yes</u> <u>No</u></p> <p>a) Volunteer Community Health Worker.1 2</p> <p>b) Health extension worker.1 2</p> <p style="text-align: center;">OTHER PERSON</p> <p>c) Other. 1 2</p> <p>Others, Specify _____</p>	
Q408	<p>If yes to Volunteer Community Health Worker in Q407,</p> <p>How many visits did you receive from a volunteer community health worker during your pregnancy?</p>	<p>_____ Visits</p> <p>Do not know.98</p>	
Q409	How many months pregnant were you when the volunteer community health worker came for the first pregnancy home visit?	<p>_____ Months</p> <p>Do not know.98</p>	
Q410	<p>When the volunteer community health worker visited you:</p> <p>a) Did she give you a book like this? (show sample - MNH book)</p> <p>b) Did she counsel you from the book?</p> <p>c) Did she give you sticker like this?</p> <p>d) Did she fill a card like this?</p> <p>f) Did she tell you something else?, if so please specify.</p> <p>Ask each question separately.</p>	<p style="text-align: right;">Mentioned:</p> <p style="text-align: right;"><u>Yes</u> <u>No</u></p> <p>a) Gave me a book1 2</p> <p>b) Counseled.1 2</p> <p>c) Gave me sticker.1 2</p> <p>d) Filled a card.1 2</p> <p>e) Other1 2</p> <p>Other, Specify _____</p>	

<p>Q411</p>	<p>What did the volunteer community health worker counsel you on during the first visit?</p> <p>Counseled on :</p> <ul style="list-style-type: none"> • Keeping the baby warm • Delaying bathing fro 24 hrs • Clean cord care • Early initiation of breast feeding • Colostrum feeding • Not to put any thing on the cord • Exclusive breast feeding for 6 months • Assessed the baby for danger signs <p>First ask unprompted, circle those mentioned. PROBE, anything else?</p> <p>After awaiting unprompted responses ask each question in turn, for those not previously mentioned. Circle either code 2 if the response is yes, circle code 3 if the response is no</p>	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;">Unprompted</th> <th style="width: 10%; text-align: center;">Prompted</th> <th style="width: 20%;"></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td style="text-align: center;"><u>Yes</u> <u>Yes</u> <u>No</u></td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: center;"><u>Counseled on:</u></td> </tr> <tr> <td>a) Attend Antenatal care</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>b) Danger signs (mother).....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>c) Danger signs (baby).....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>d) Birth plan.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>e) Clean delivery.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>f) To keep the baby warm</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>g) Early initiation of breast feeding.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>h) Exclusive breast feeding.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>i) Clean cord care.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>j) Hand washing.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>k) Use of ITN.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>l) Family planning.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>m) Notify VCHW/HEW of delivery.</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>n) Other.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Other, Specify _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Do not know.....</td> <td colspan="2"></td> <td style="text-align: center;">8</td> </tr> </tbody> </table>		Unprompted	Prompted					<u>Yes</u> <u>Yes</u> <u>No</u>				<u>Counseled on:</u>	a) Attend Antenatal care	1	2	3	b) Danger signs (mother).....	1	2	3	c) Danger signs (baby).....	1	2	3	d) Birth plan.....	1	2	3	e) Clean delivery.....	1	2	3	f) To keep the baby warm	1	2	3	g) Early initiation of breast feeding.....	1	2	3	h) Exclusive breast feeding.....	1	2	3	i) Clean cord care.....	1	2	3	j) Hand washing.....	1	2	3	k) Use of ITN.....	1	2	3	l) Family planning.....	1	2	3	m) Notify VCHW/HEW of delivery.	1	2	3	n) Other.....	1	2	3	Other, Specify _____				Do not know.....			8	
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<p>Q412</p>	<p>If the answer for Q409 is 2 or greater ask the following question:</p> <p>How many months pregnant were (with Name) when volunteer community health worker came for the second pregnancy home visit?</p>	<p style="text-align: right;">_____Months</p> <p>Do not know.....98</p>																																																																													
<p>Q413</p>	<p>What did the volunteer community health worker do during her second visit?</p> <ul style="list-style-type: none"> • Attend Antenatal Care Services • Danger signs • Birth Plan • Clean delivery • Keeping baby warm • Timely initiation of breastfeeding • Exclusive breastfeeding • clean cord care • Hand washing • use of ITN • Family planning <p>First ask unprompted, circle those mentioned. PROBE, anything else?</p> <p>After awaiting unprompted responses ask each question in turn, for those not previously mentioned. Circle either code 2 if the response is yes, circle code 3 if the response is no</p>	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;">Unprompted</th> <th style="width: 10%; text-align: center;">Prompted</th> <th style="width: 20%;"></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td style="text-align: center;"><u>Yes</u> <u>Yes</u> <u>No</u></td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: center;"><u>Counseled on:</u></td> </tr> <tr> <td>a) Attend Antenatal care</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>b) Danger signs (mother).....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>c) Danger signs (baby).....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>d) Birth plan.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>e) Clean delivery.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>f) To keep the baby warm</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>g) Early initiation of breast feeding...1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>h) Exclusive breast feeding.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>i) Clean cord care.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>j) Hand washing.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>k) Use of ITN.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>l) Family planning.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>l) Notify VCHW/HEW of delivery...1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>m) Other.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Other, Specify _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Do not know.....</td> <td colspan="2"></td> <td style="text-align: center;">8</td> </tr> </tbody> </table>		Unprompted	Prompted					<u>Yes</u> <u>Yes</u> <u>No</u>				<u>Counseled on:</u>	a) Attend Antenatal care	1	2	3	b) Danger signs (mother).....	1	2	3	c) Danger signs (baby).....	1	2	3	d) Birth plan.....	1	2	3	e) Clean delivery.....	1	2	3	f) To keep the baby warm	1	2	3	g) Early initiation of breast feeding...1	1	2	3	h) Exclusive breast feeding.....	1	2	3	i) Clean cord care.....	1	2	3	j) Hand washing.....	1	2	3	k) Use of ITN.....	1	2	3	l) Family planning.....	1	2	3	l) Notify VCHW/HEW of delivery...1	1	2	3	m) Other.....	1	2	3	Other, Specify _____				Do not know.....			8	
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Q414	If yes to Health Extension Workers in Q407, How many pregnancy home visits did you receive from Health Extension Worker?	_____ Visits Do not know.....98	
Q415	How many months pregnant were you when Health Extension Worker came for the pregnancy home visit (when you were pregnant with Name)?	_____ Months Do not know.....98	
Q416	<p>What did Health Extension Worker do when she first visited you?</p> <ul style="list-style-type: none"> • Counseled on the need of 4 ANC visit • Asked/counseled about danger signs • Counseled on notification of vCHW/HEW when labor /delivery occurs • Counseled on birth preparedness • Filled a form <p>First ask unprompted, circle those mentioned. PROBE, anything else?</p> <p>After awaiting unprompted responses ask each question in turn, for those not previously mentioned. Circle either code 2 if the response is yes, circle code 3 if the response is no</p>	<p>Unprompted Prompted</p> <p><u>Yes</u> <u>Yes</u> <u>No</u></p> <p>a) Counseled about ANC1 2 3</p> <p>b) Counseled about danger sign (mother).....1 2 3</p> <p>c) Notification of HEW/VCHW about delivery?.....1 2 3</p> <p>d) Counseled on birth preparedness.....1 2 3</p> <p>e) Other.....1 2 3</p> <p>Other, Specify _____</p>	

V. DELIVERY AND POST NATAL CARE VISIT

Now I would like to ask you some questions about the visits you received from CHPs and HEWs after delivery:

Q501	Where did you give birth to (NAME)?	<p>HOME</p> <p>Your home. 1</p> <p>Other home. 2</p> <p>PUBLIC SECTOR</p> <p>Govt. Hospital.....3</p> <p>Govt. Health center 4</p> <p>Govt. Health post 5</p> <p>NON-GOVT(NGO) HEALTH FACILITY.....6</p> <p>Pvt. Hospital/clinic..... 7</p> <p>OTHER8</p> <p>Specify _____</p>	
Q502	<p>Who assisted with the delivery of (NAME)?</p> <p>DO NOT READ RESPONSES</p> <p>Anyone else?</p> <p>Probe for the type(s) of person(s) and record all mentioned. If respondent says 'no one assisted', probe to determine whether any adults were present at the delivery.</p>	<p>Mentioned:</p> <p><u>Yes</u> <u>No</u></p> <p>HEALTH PERSONNEL</p> <p>a) Doctor1 2</p> <p>b) Midwife..... .1 2</p> <p>c) Nurse..... 1 2</p> <p>d) Health extension worker.....1 2</p> <p>e) Health worker unknown type.....1 2</p> <p>OTHER PERSON</p> <p>f) Traditional birth attendant.....1 2</p> <p>g) Relative/friend.....1 2</p> <p>h) VCHW.....1 2</p> <p>i) Other.....8</p>	

		Other, Specify _____	
Q502A	CHECK MODULE 1 (S306) AND MODULE Q207 ASK THE FOLLOWING FOR CHILDREN WHO ARE NOT ALIVE: BABY BORN ALIVE.....1 LOST BEFORE FULL TERM OF PREGNANCY.....2→ BORN DEAD.....3→		→END →Q510
503	When (name) was delivered, what instrument was used to cut the cord?	New Blade.....1 Boiled Blade2 Unboiled used blade.....3 Knife.....4 Scissor.....7 Other8 Other (specify) _____ Don't know9	
504	Was anything applied to the cord immediately after cutting (and tying) of (name's) cord?	Yes1 No..... 2 Don't Know.....8	
505	What was applied to the cord just after cutting (name's) cord?	Butter.....1 Ash.....2 Ointment.....3 Animal dung.....4 Oil.....5 Cold water.....6 Other.....7 Other (specify) _____ Don't know.....8	
506	How long after birth was (NAME) bathed for the first time? If less than one day, probe to record the number of hours of life when bathed If less than one hour, enter "00"	Hours..... <input type="text"/> <input type="text"/> Days..... <input type="text"/> <input type="text"/> Don't Know.....98	
507	Was the baby (Name) put to the breast before the placenta was delivered?	Yes.....1 No.....2 Don't know8	
508	How long after birth did you first put (NAME) to the breast? If less than 1 hour, record '00' hours. If less than 24 hours, record hours. Otherwise, record days.	Hours.....[____ ____] Days..... [____ ____] Don't Know.....98 Never breastfed.....99	
509	Did you squeeze out and throw away the first milk ?	Yes.....1 No.....2 Do not know.....8	
510	After (NAME) was born, did any health care provider or volunteer community health worker check on your or your baby's health in the first week? PROBE: Any visits where the health care provider or vCHW came to your home after	Yes 1 No 2→	→513

	delivery to talk, provide counseling, examine yourself or your baby?																				
511	<p>IF YES: Who visited you? DO NOT READ RESPONSES Anyone else?</p> <p>PROBE TO IDENTIFY EACH TYPE OF PERSON AND RECORD ALL MENTIONED</p>	<p style="text-align: right;">Mentioned:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>Yes</u></th> <th style="text-align: center;"><u>No</u></th> </tr> </thead> <tbody> <tr> <td>a) volunteer community health worker</td> <td style="text-align: center;">.1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>b) Health extension worker.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td colspan="3" style="text-align: center;">OTHER PERSON</td> </tr> <tr> <td>c) Other.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td colspan="3">Specify _____</td> </tr> </tbody> </table>		<u>Yes</u>	<u>No</u>	a) volunteer community health worker	.1	2	b) Health extension worker.....	1	2	OTHER PERSON			c) Other.....	1	2	Specify _____			
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512	If yes to volunteer community health worker in Q511, How many visits did you and/or your receive from the volunteer community health worker ?	<p style="text-align: right;">_____ Visits</p> <p>Don't Know.....98</p>																			
513	<p>How long after delivery (of NAME) did the first check take place?</p> <p>If less than one day, record hours. If less than one week, record days.</p>	<p>Hours..... <input style="width: 40px; height: 20px;" type="text"/> <input style="width: 40px; height: 20px;" type="text"/></p> <p>Days..... <input style="width: 40px; height: 20px;" type="text"/> <input style="width: 40px; height: 20px;" type="text"/></p> <p>Weeks..... <input style="width: 40px; height: 20px;" type="text"/> <input style="width: 40px; height: 20px;" type="text"/></p> <p>Don't Know.....98</p>																			

514	<p>What did volunteer community health worker do when she first visited you after you gave birth to (Name)?</p> <p>Counseled on :</p> <ul style="list-style-type: none"> • Keeping the baby warm • Delaying bating fro 24 hrs • Clean cord care • Early initiation of breast feeding • Colostrum feeding • Not to put any thing on the cord • Exclusive breast feeding for 6 months • Assessed the baby for danger signs <p>First ask unprompted, circle those mentioned. PROBE, anything else?</p> <p>After awaiting unprompted responses ask each question in turn, for those not previously mentioned. Circle either code 2 if the response is yes, circle code 3 if the response is no</p>	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Unprompted</th> <th style="text-align: center;">Prompted</th> <th></th> </tr> <tr> <th></th> <th style="text-align: center;"><u>Yes</u></th> <th style="text-align: center;"><u>Yes</u></th> <th style="text-align: center;"><u>No</u></th> </tr> </thead> <tbody> <tr> <td>a. keeping baby warm.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>b. Delaying bathing for 24 hrs.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>c. Not to put any thing on the cord.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>d. Exclusive breast feeding</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>e. Danger signs in newborns</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>f. Danger signs in mothers.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>g. Seeking care for danger signs.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>h. Checked mother for danger signs....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>i. Checked baby for danger signs.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>j. Referred sick baby</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>k. Other.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td colspan="4">Specify _____</td> </tr> </tbody> </table>		Unprompted	Prompted			<u>Yes</u>	<u>Yes</u>	<u>No</u>	a. keeping baby warm.....	1	2	3	b. Delaying bathing for 24 hrs.....	1	2	3	c. Not to put any thing on the cord.....	1	2	3	d. Exclusive breast feeding	1	2	3	e. Danger signs in newborns	1	2	3	f. Danger signs in mothers.....	1	2	3	g. Seeking care for danger signs.....	1	2	3	h. Checked mother for danger signs....	1	2	3	i. Checked baby for danger signs.....	1	2	3	j. Referred sick baby	1	2	3	k. Other.....	1	2	3	Specify _____				
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<p>518</p>	<p>Sometimes newborns, within the first month of life, have severe illnesses and should be taken immediately to a health facility.</p> <p>What types of symptoms would cause you to take your newborn to a health facility right away?</p> <p>DO NOT READ RESPONSES</p> <p>Prompt: “Anything else?” But do NOT prompt with any suggestions.</p> <p>Circle all symptoms mentioned</p>	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th colspan="2" style="text-align: center;">Mentioned:</th> </tr> <tr> <th></th> <th style="text-align: center;"><u>Yes</u></th> <th style="text-align: center;"><u>No</u></th> </tr> </thead> <tbody> <tr> <td>a) Convulsions.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>b) Fever.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>c) Poor suckling or feeding.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>d) Child has difficult/fast breathing,,</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>e) Baby feels cold.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>f) Baby too small or born too early...1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>g) Redness/Discharge around cord....1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>h) Red swollen eyes/discharge.....1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>i) Yellow palms/soles/eyes.....1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>j) Lethargy.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>k) Unconscious.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>l) Other.....</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Specify _____</td> <td></td> <td></td> </tr> <tr> <td>Don't Know.....</td> <td style="text-align: center;">8</td> <td></td> </tr> </tbody> </table>		Mentioned:			<u>Yes</u>	<u>No</u>	a) Convulsions.....	1	2	b) Fever.....	1	2	c) Poor suckling or feeding.....	1	2	d) Child has difficult/fast breathing,,	1	2	e) Baby feels cold.....	1	2	f) Baby too small or born too early...1	1	2	g) Redness/Discharge around cord....1	1	2	h) Red swollen eyes/discharge.....1	1	2	i) Yellow palms/soles/eyes.....1	1	2	j) Lethargy.....	1	2	k) Unconscious.....	1	2	l) Other.....	1	2	Specify _____			Don't Know.....	8						
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