Trend in the Maternal & Newborn Health Care Practices in L10K Areas

Findings from the Baseline, Midterm and Rapid Community Surveys

Addis Ababa, Ethiopia
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JSI L10K The Last Ten Kilometers Project
JSI Research & Training Institute, Inc.

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Acronyms

ANC	Antenatal care
BP	Blood Pressure
CBDDM	Community Based Data for Decision Making
CHW	Community Health Worker
FHC	Family Health Card
HC	Health Center
HDA	Health Development Army
HEP	Health Extension Program
HEW	Health Extension Worker
HH	Household
HP	Health Post
L10K	The Last Ten Kilometers Project
M&E	Monitoring and Evaluation
MDG	Millennium Development Goal
MNCH	Maternal, Newborn and Child Health
MNH	Maternal and Newborn Health
NFI	Non-Financial Incentive
NGO	Non-Governmental Organization
PHCU	Primary Health Care Unit
RCS	Rapid Community Survey
SNNPR	Southern Nations, Nationalities and People's Region
TT 2+	Two or more Tetanus Toxoid

Abstract

The Last Ten Kilometers Project (L10K) strengthens the link between Ethiopia's Health Extension Program (HEP) and its beneficiaries through innovative community based strategies aimed at improving maternal, newborn, and child health (MNCH) care practices at scale. L10K's Bill & Melinda Gates Foundation funded activities covers 14 million people in 115 woredas of Amhara, Oromia, SNNP and Tigray Regions. Over the past year L10K has been scaling up its community based data for decision making (CBDDM) and the non-form incentive (NFI) strategies from selected pilot woredas to all of its 115 L10K intervention woredas. To monitor the performance of the scale-up, a rapid community survey (RCS) was conducted in November 2013 and compared with the L10K baseline (December 2008) and midterm (December 2010) surveys to observe the trend in the maternal and newborn health (MNH) indicators. The findings indicate that antenatal care visits including its components, skilled birth attendance, postnatal care within 48 hours of childbirth, giving newborn first milk (colostrum), and delaying bathing the newborn increased significantly between the midterm survey and the RCS. However, distribution of family health cards, receiving two or more tetanus toxoid injections during pregnancy, and taking appropriate care of the umbilical cord cut stump of the newborn did not improve during the same period. While there were positive trends in some of the key MNH indicators, the improvements in newborn health practices has been stagnant. L10K should identify bottlenecks associated with the gaps identified by the RCS and address them.

Background

Introduction

Ethiopia has already achieved its Millennium Development Goal 4: reduce under-five mortality rate to 67 deaths per 1,000 live births by 2015. Nevertheless, the reduction in neonatal mortality rate over the past decade has been slow while the maternal mortality ratio during the same period remained relatively unchanged. At 37 deaths per 1,000 live births, neonatal deaths now account for 42% of all under-five mortalities; while maternal mortality ratio in Ethiopia has remained at 676 deaths per 100,000 live births (CSA & ICF 2011). Simple community-based strategies to improve antenatal, childbirth, and newborn health care practices have been shown to reduce neonatal deaths (PMNCH 2011). Since 90% of births occur at home in Ethiopia, community-based essential newborn care strategies are essential to minimize the high newborn mortalities.

The Last Ten Kilometers Project (L10K)—funded by The Bill & Melinda Gates Foundation and implemented by JSI Research & Training Institute, Inc.—rolled out innovative community-based high impact maternal and newborn health strategies in December 2008. L10K aims to strengthen the bridge between households, communities, and the health extension program (HEP) of the Ethiopian Government. L10K mobilizes families and communities to fully engage to improve key maternal, neonatal and child health (MNCH) care practices and contribute towards achieving Millennium Development Goals (MDGs) 4 and 5 (i.e., decrease child and maternal mortality rates, respectively).

In order to spread its reach and learning, L10K partners with and enhances the capacity of 12 local Civil Society Organizations and Non-Governmental Organizations to cover 115 woredas (i.e., districts) and reach about 14 million people in four of the most populous regions of the country: Amhara, Oromia, Tigray, and the Southern Nations, Nationalities and People (SNNP) regions.

Study objective

Over the past year L10K has been scaling up its community based data for decision making (CBDDM) and non-formal incentive (NFI) strategies that were being implemented in selected pilot woredas to all of its 115 woredas (i.e., the L10K platform). A rapid community survey (RCS) was conducted to monitor the performance of the scale-up by observing the trend and status of the MNH indicators.

Methodology

Study design

The study design is comparison of cross-sectional surveys conducted in December 2008 (baseline), December 2010 (midterm) and November 2013 (RCS).

Study settings

The study domain was the L10K platform—i.e., 115 intervention woredas. The L10K platform strategy improves the skills of Health Extension Workers (HEWs) to work with their communities by organizing and utilizing a network of Health Development Army (HDA) members. The platform mobilizes existing community structures, organizations and institutions (such as *idirs*, churches, mosques, and women's and youth associations) to act as *anchors* to motivate and sustain the activities of the HDA members.

CBDDM and NFI was scaled-up from 14 pilot woredas, each, to the L10K platform woredas. The strategy facilitates the use of data at community level to improve performance of the MNCH activities of the HEP. The approach is the use of mapping by HDA members to facilitate the surveillance of 30 households in their command area to help HEWs provide targeted MNCH services by identifying individuals within households with need for specific health services. Once pregnancy is identified by the HDA member through her surveillance system, a *family conversation* is organized with the pregnant woman's family members who are the decision makers (e.g., husband and mother-in-laws) to make birth preparedness and pregnancy complication readiness plan. The platform uses NFI mechanisms, e.g. celebrations are organized periodically, to recognize the contribution of HDAs and sustain their efforts over time.

The platform also includes activities to strengthen the link between the five satellite health posts (HP) and its command health center (HC)—i.e., the primary health care unit (PHCU)—through facilitating supportive supervision, performance review meetings, and referral and linkage activities.

Study population

Women with children aged 0-11 months; while all the MNH care indicators were measured from the respondent's most recent pregnancy and childbirth.

Data collection

The baseline and midterm surveys were two-stage cluster samples, stratified by regions. At first stage the kebeles were selected using probability proportional to its population size. At second stage households were selected. For the purpose the interviewer went to the middle of the kebele and spin a pen on the ground to randomly choose a direction to find the first household for interview. The direction was determined by direction the ballpoint of the pen was pointing after the spinning of the pen stopped. The first household in that direction was the starting household. Every fifth household was then visited, moving away from the center of the kebele, and all women with children 0 to 11 months from the visited households were interviewed until the desired quota of women from the kebele were interviewed (see L10K 2012 for details). For the RCS, five kebeles were randomly selected from each region from the list of kebeles that were visited during the midterm survey and then 20 target respondents were then interviewed from each kebele. The sample sizes during each of the survey periods are given in Table 1.

Table 1: Sample sizes for baseline, midterm, and rapid community surveys

Sampling elements	Baseline Dec. 2008	Midterm Dec. 2010	RCS Nov. 2013
Number of kebeles/clusters	203	330	20
Women with children 0 to 11 months	2448	3959	400

During the RCS the fieldwork was carried out by four survey teams. Each team consisting of five interviewers, except in Tigray where there were 4 interviewers in a team. The interviewers were all health professionals working for L10K grantees at woreda levels and were selected in close consultation with their respective grantee managers. The interviewers surveyed households that were not within their command areas.

Training of the interviewers was conducted in four sessions – the Oromia team was trained in Jimma, the SNNP team in Addis Ababa, the Amhara team in Bahir dar and the Tigray team in Mekelle. The focuses of the training was the survey objective, general introduction about the survey, instruction on interviewing techniques and filed survey procedures, a detailed review of each item in the questionnaire and specific survey instructions.

The regional L10K M&E Coordinators also attended the trainings and were given orientations on how to organize the survey, monitor and supervise the field work, on the techniques of detecting errors in the field and correcting them on spot. The whole survey including the training period took about a month (from October 22 – November 20, 2013).

On the whole, the field work was completed on time as planned. Nevertheless, it has not been without problems, especially due to geographic inaccessibility. In few instances, the field team had to travel on foot for 3 or more hours to get to the selected cluster. Out of the 20 originally selected kebeles, three had to be replaced due to extreme inaccessibility.

The survey measured respondent's characteristics, access and utilization of maternal and newborn health care which included antenatal care, birth preparedness, delivery, essential newborn care and postnatal care and breastfeeding.

Data processing and analysis

The RCS used smart phones to capture data which was transmitted via internet to a remote server from where data was accessed for analysis. For the purpose the MagPi platform by DataDyne was used (for details on MagPi please visit DataDyne at http://www.datadyne.org/). Data analysis was performed using STATA version 12. Maternal and newborn health indicators were analyzed. Statistical tests adjusted for cluster survey design was done to assess differences in the indicators between the survey periods.

Results

From next page.

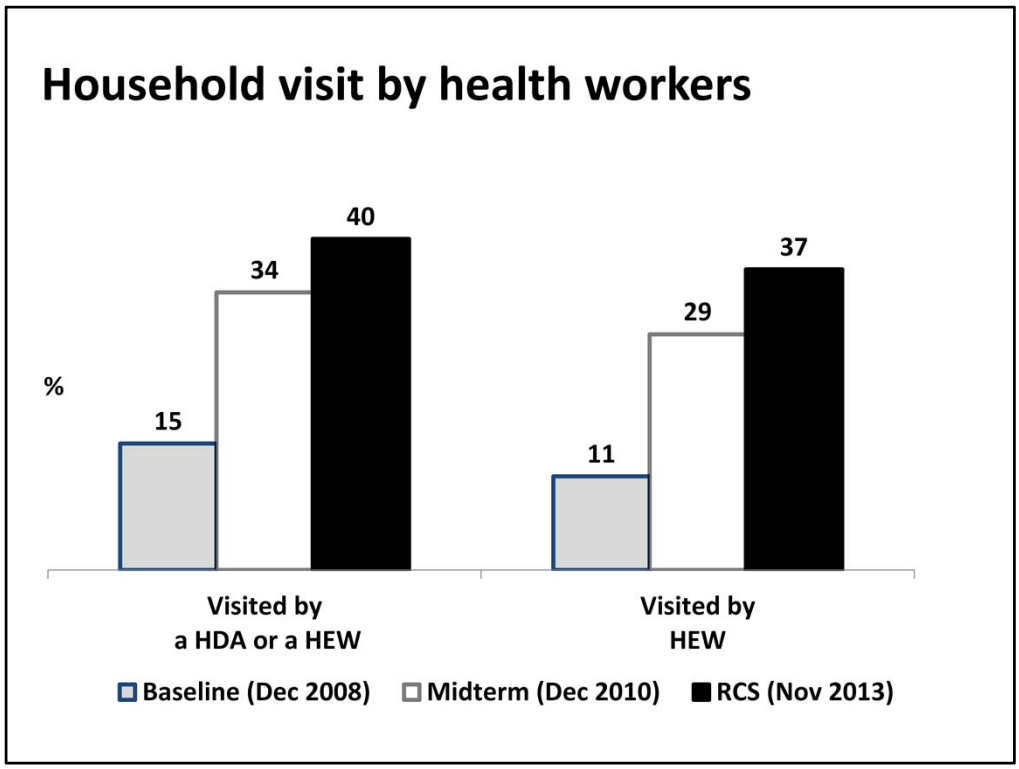
Sample characteristics

Characteristics	Baseline Dec. 2008	Midterm Dec. 2010	RCS Nov. 2013
Women's age			
24 years or less	35.9	32.3	35.2
>24 years	64.1	67.7	64.8
Literacy (Can read or write)			
Yes	32.0	24.7	26.5
No	78.0	75.3	73.5
Distance to the nearest health facility (walking time)			
1 hour or less	76.9	90.4	85.7
>1 hour	23.1	9.6	14.4
Total	100.0	100.0	100.0
Sample size	2,448	3,959	400

Sample characteristics

Differences in women's age and literacy between the survey periods were not statistically significant ($p>0.5$).

Women living more than an hour's walking distance from any health facility decreased ($p<0.05$) between baseline and midterm surveys; but were similar between the midterm survey and the rapid community survey (RCS).

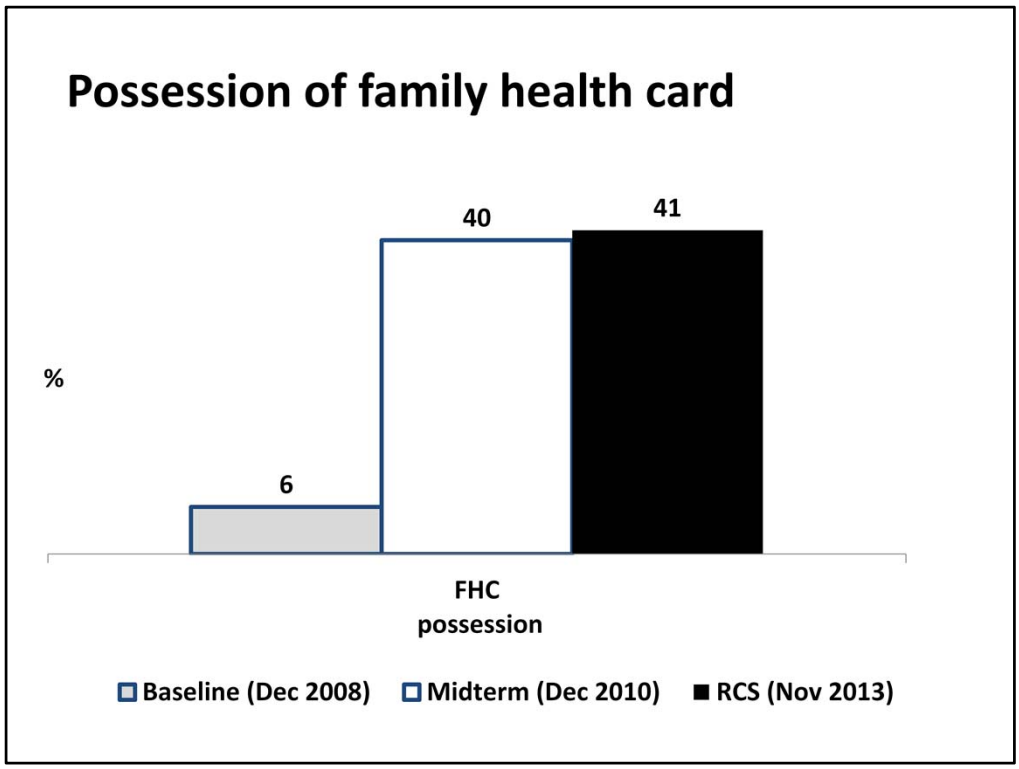


Visited by any community health workers (CHWs)

The percentage of women (with children aged 0 to 11 months) visited by a HDA member or a HEW during their last pregnancy showed statistically significant increase ($p<0.05$) from the baseline survey to the midterm survey; however the observed increase from the midterm to the RCS was not statistically significant ($p>0.05$). The percentage of women (with children aged 0 to 11 moths) who reported that she was visited by a HDA member during her last pregnancy at RCS was low (only 11%). Given the recent deployment of HDA members and the roll-out of CBDDM, the level of household visits by HDA members was not as high as expected. This could be explained by the possibility that some women see the HDA members as a neighbor who is especially conscientious about health and not as an agent (i.e., CHW) for promoting HEP services. Nevertheless, the incongruity could also be partly explained by relative inactivity by some HDA members. Regional variations are given in Annex Table A1.

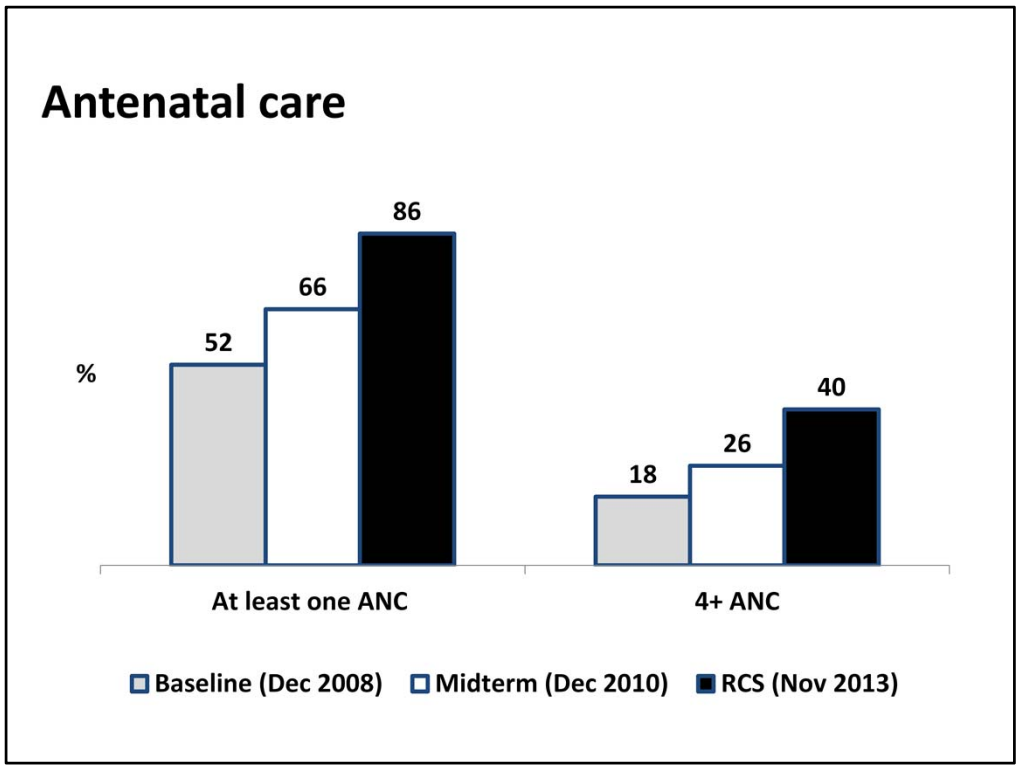
Visited by HEW

The percentage of women (with children aged 0 to 11 months) visited by a HEW during her last pregnancy increased ($p<0.05$) between the baseline and midterm surveys, but the observed increase between midterm and the RCS was not statistically significant ($p>0.05$).



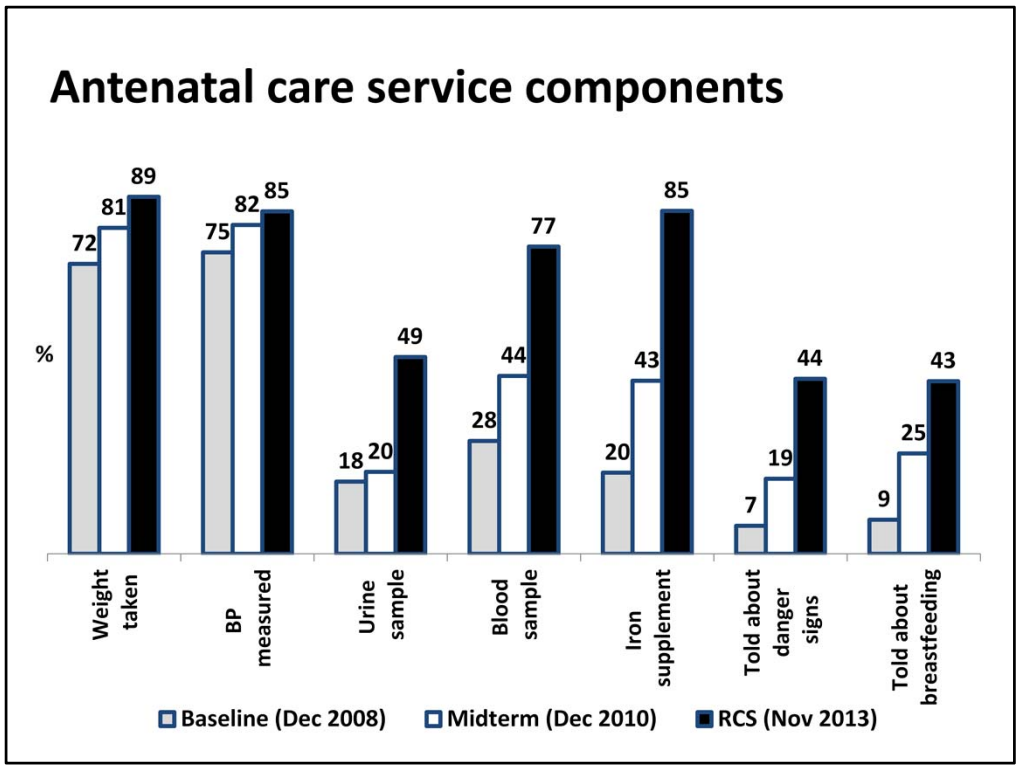
Family health card (FHC) Possession

FHC is the main tool used by HEW and the HDA members to educate households on key MNCH care practices. The FHCs are distributed to the household mainly following the identification of pregnancies. There was no change between midterm and RCS in FHC possession among women with children aged 0 to 11 months households.



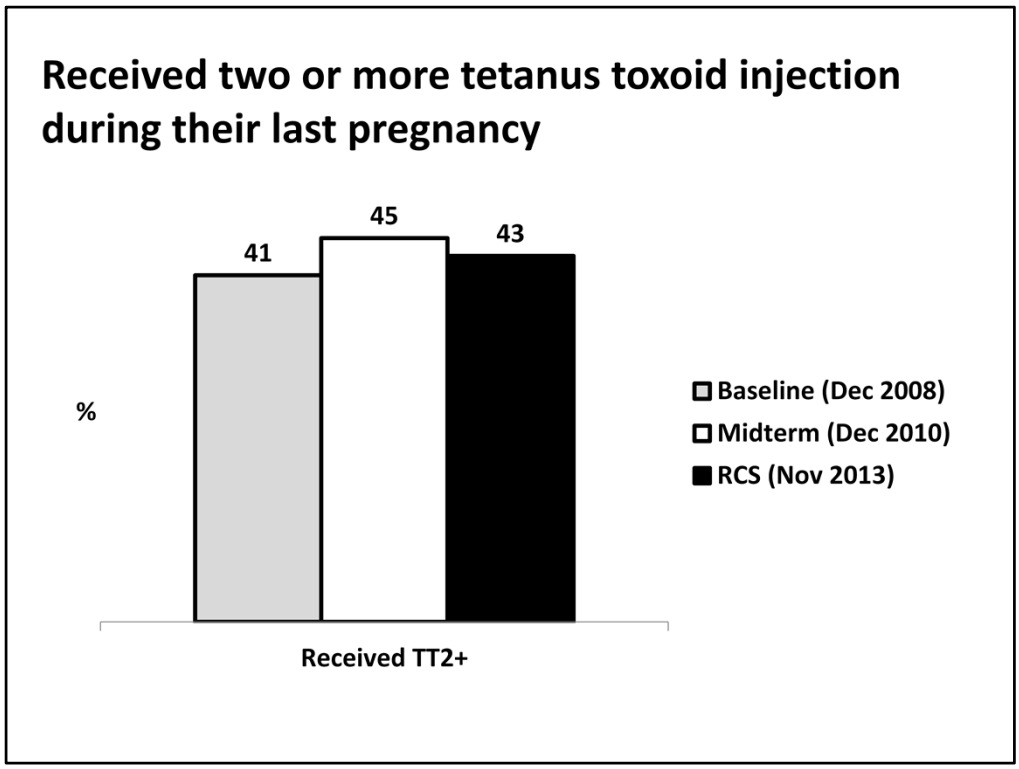
Antenatal care (ANC)

The percentage of women (with children aged 0 to 11 months) who received at least one ANC from a health facility during her last pregnancy steadily increased ($p<0.05$) between all the survey periods. Similar trend was seen for receiving four or more (4+) ANC. Regional variations in ANC coverage are given in Annex Table A1.



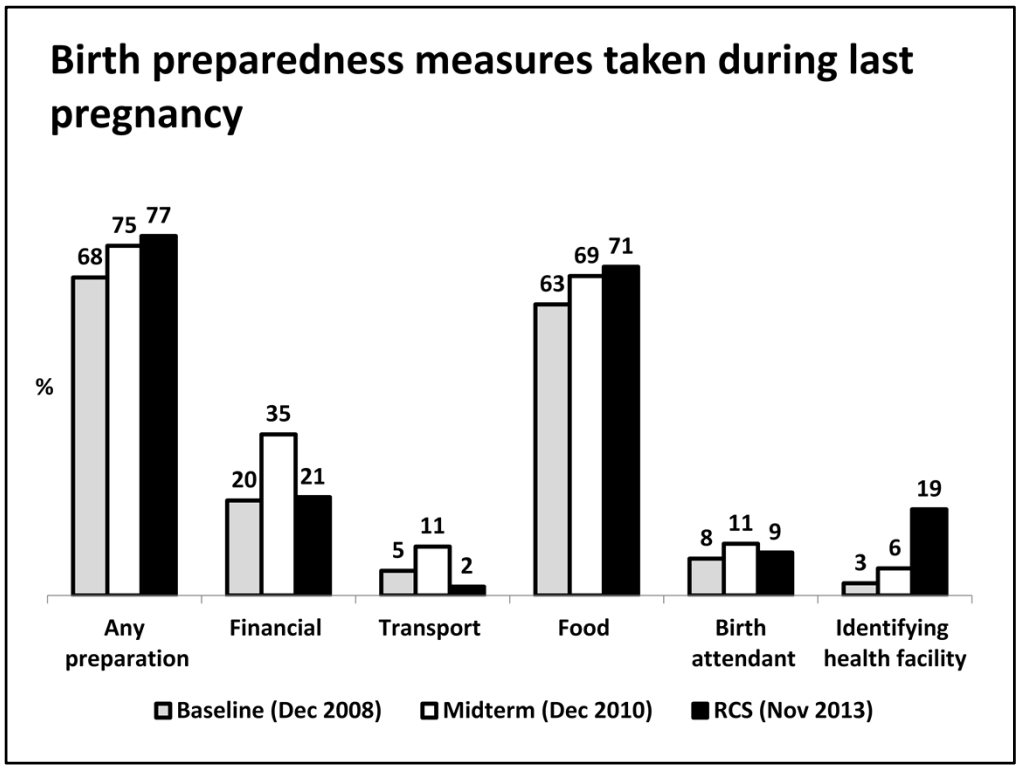
Antenatal care service components

The quality of ANC improved since the midterm survey. The quality of the care was examined by looking at the different components of the ANC the women reported that they received during their ANC visits. Seven different components of ANC were explored (*i.e. weight taken, blood pressure measured, urine sample taken, blood sample taken, iron supplement given, told about danger signs and told about breast feeding*) and improvement ($p<0.05$) was observed in five of those between the midterm survey and the RCS. The improvements in taking weight and measuring blood pressure observed during the same period was not statistically significant ($p>0.05$).



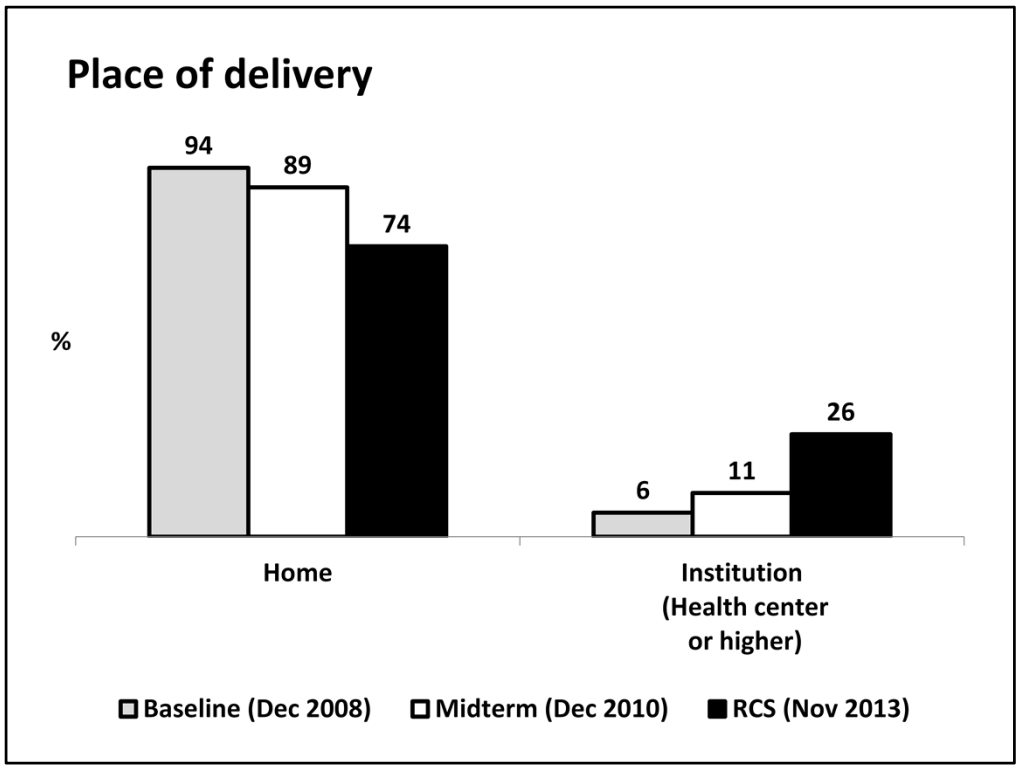
Received two or more tetanus toxoid injection (TT2+) during last pregnancy

The differences in percentage of women (with children 0 to 11 months) who received TT2+ during their last pregnancy were not significant ($p>0.05$) between any of the survey periods. However, it should be noted that the low coverage of TT2+ does not necessarily translate to low coverage of neonatal tetanus protected births since women who are already protected against tetanus (from prior TT doses) are not given TT injection during pregnancy.



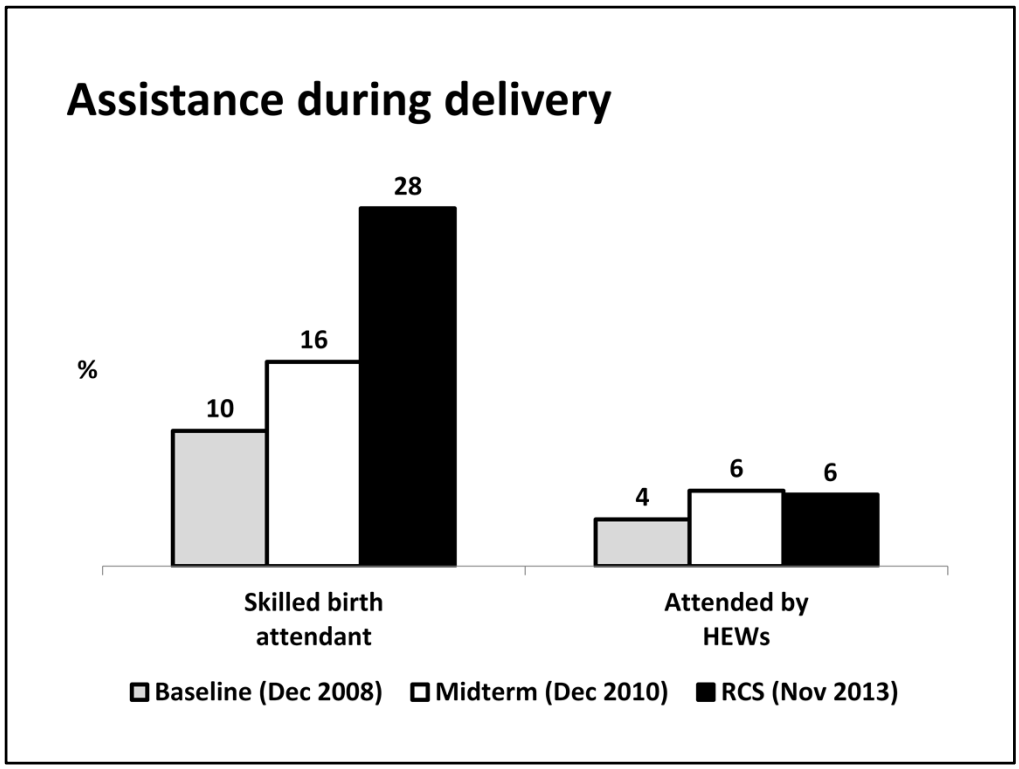
Birth preparedness measures taken

The percentage of women (with children aged 0 to 11 months) who took any birth preparedness measures during their last pregnancy show significant improvement ($p<0.05$) between the baseline and midterm but not between midterm and RCS. However, it is interesting to note that out of the five birth preparedness measures, identification of health facility for the place of delivery increased ($p<0.05$) between midterm and RCS which were not very different ($p>0.05$) between the baseline and the midterm.



Place of delivery

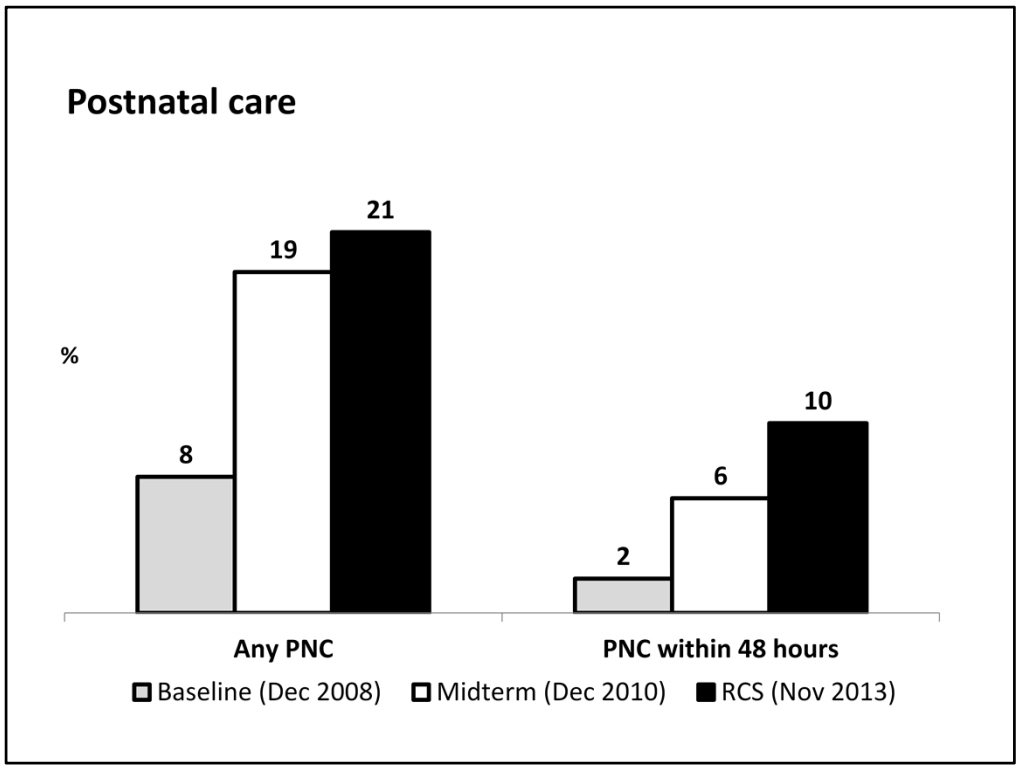
The percentage of women (with children 0 to 11 months) who delivered at an institution (health center or higher) showed more than two-fold increase ($p<0.05$) from the midterm to the RCS.



Assistance during delivery

Deliveries attended by skilled birth attendant (i.e., midwife, nurse, health officer or doctor) have increased ($p<0.05$) between all the survey periods.

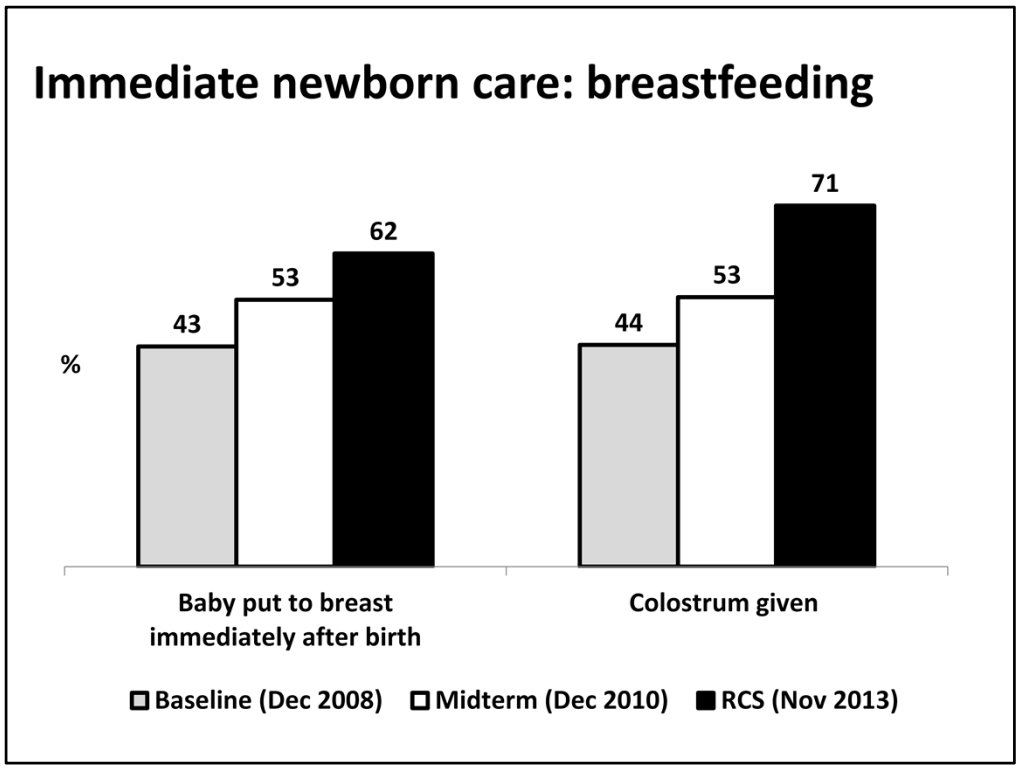
HEW assisted deliveries increased ($p<0.05$) between baseline and midterm but not between midterm and RCS.



Postnatal care (PNC)

The percentage of women (with children aged 0 to 11 months) who were visited by a HEW for PNC during her last pregnancy increased ($p<0.05$) between baseline and midterm but not between midterm and RCS.

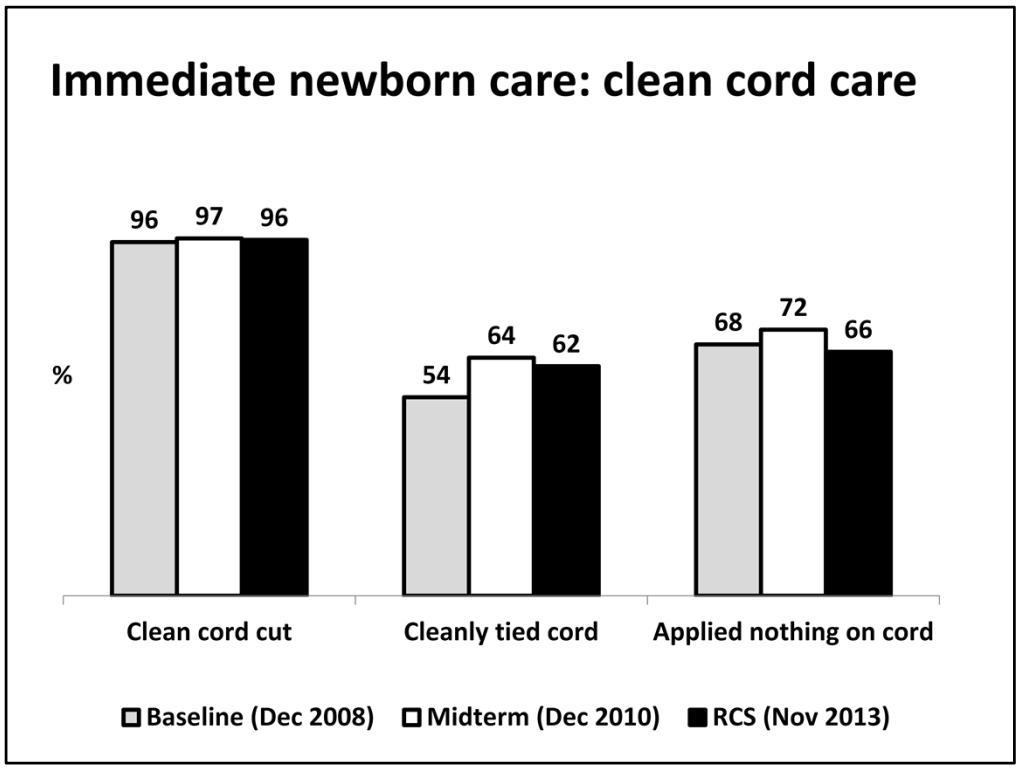
Encouragingly, there was an increase ($p<0.05$) in the percentage of women (with children aged 0 to 11 months) who received PNC in 48 hours by a HEW during her last pregnancy.



Immediate newborn care: breastfeeding

The proportion of women (with children aged 0 to 11 months) who put their babies to breast within an hour of childbirth increased ($p<0.05$) between the baseline and midterm. However, the change of the indicator after the midterm was not statistically significant ($p>0.05$).

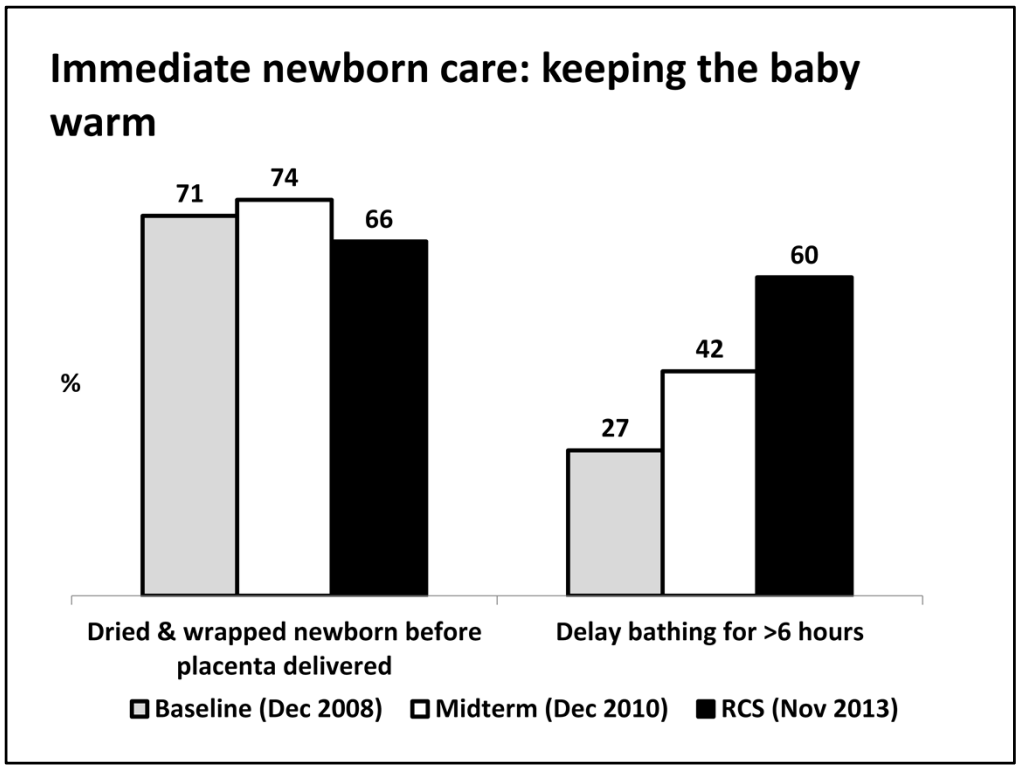
The percentage of women (with children aged 0 to 11 months) who had given her newborn the first milk (i.e., colostrum) increased ($p<0.05$) between all the survey periods.



Immediate newborn care: clean cord care

There were no changes in cleanly cutting the umbilical cord of the newborn between any of the survey periods.

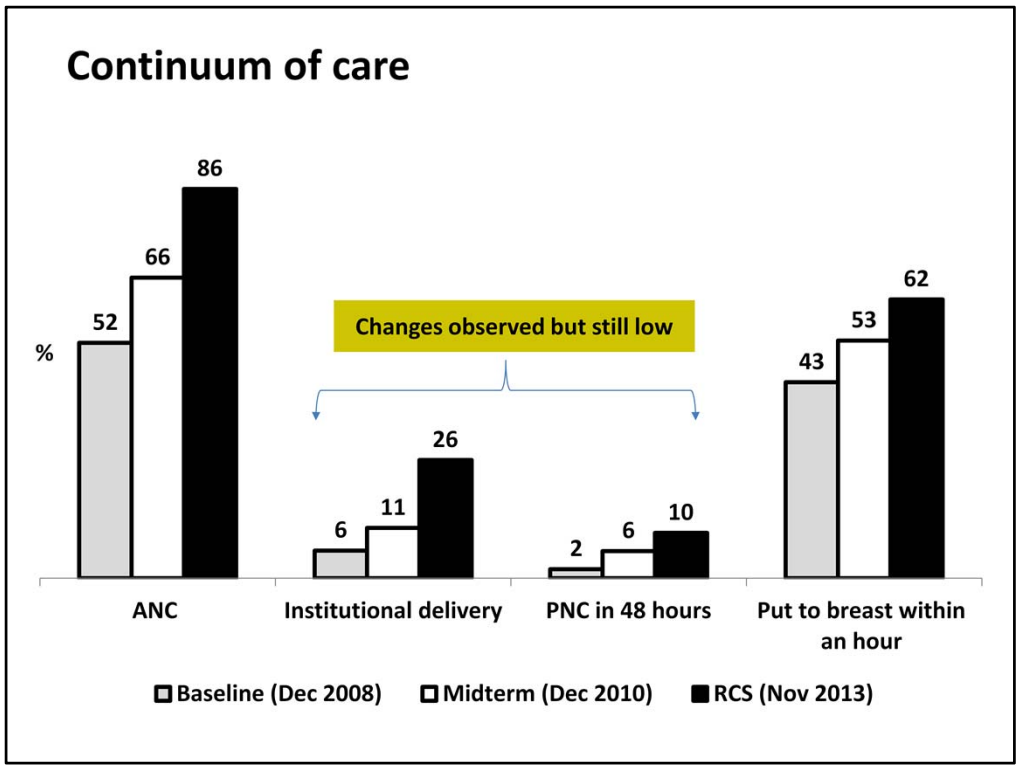
Although improvements ($p<0.05$) in cleanly cutting the cord and applying nothing to the cord were observed between the baseline and the midterm, the changes in those indicators were not statistically significant between the midterm and RCS.



Immediate newborn care: keeping the baby warm

Delay bathing the newborn by more than six hours after childbirth increased ($p<0.05$) between all the survey periods.

However, The changes in drying and wrapping the baby immediately after childbirth between any of the survey periods were not statistically significant ($p>0.05$).



Although improvement in maternal and newborn care was observed along the continuum of care, care during the most critical period—i.e., during childbirth and within 48 hours of childbirth—remains less than optimum.

Conclusion

The RCS indicates that the key MNH indicators in the 115 woredas where L10K is implementing its platform strategies have been improving. The coverage of receiving any ANC from a health facility, receiving four or more ANC services, quality of ANC services, institutional deliveries, skilled birth attendance, PNC in 48 hours, giving colostrum to the newborn, and delaying bathing the newborn improved during the past three years. However, distribution of FHC, which has been found to be an effective tool in improving MNH care practices (Karim et al. 2013), has remained low; while key newborn care practices, mainly clean cord care, and drying and wrapping the baby immediately after birth had remained unchanged.

It was encouraging to observe that institutional deliveries increased by more than two-fold. However, it is still not optimum to reach the national target—i.e., 60% by 2015 (FMOH 2010). Similarly, PNC within 48 hours is still less than optimum in order to detect critical newborn and maternal morbidities that needs more specialized care.

L10K should identify the bottlenecks in distribution of FHCs and address them; identify and implement effective strategies to improve PNC in 48 hours; identify and implement ways to further improve skilled birth attendance; and emphasize the improvement of newborn care practices during supportive supervision and during woreda and PHCU level performance review meetings.

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Annex Table A1

Annex Table A1: Trend in the maternal & newborn health care practices by region, baseline (Dec 2008), midterm (Dec 2010) and RCS (Nov 2013)

	Tigray			Amhara			Oromia			SNNP			L10K Total		
	Dec 2008	Dec 2010	Nov 2013	Dec 2008	Dec 2010	Nov 2013	Dec 2008	Dec 2010	Nov 2013	Dec 2008	Dec 2010	Nov 2013	Dec 2008	Dec 2010	Nov 2013
Exposure to HEP															
% of women who have FHC	24.0	49.0	54.0	3.0	32.0	31.0	1.0	33.0	38.0	4.0	37.0	55.0	6.0	36.0	41.2
% visited by any community health workers	26.1	42.9	60.0	14.4	33.7	38.0	6.6	26.5	28.0	20.3	36.7	47.0	15.4	33.8	40.3
% of women visited by HEWs	10.5	32.7	55.0	12.6	27.5	33.0	4.8	24.2	26.0	18.3	33.7	44.0	11.4	28.7	36.6
Antenatal care coverage															
% received ANC from health facility	78.3	87.1	98.0	37.5	56.1	80.0	51.6	63.5	89.0	60.5	74.4	86.0	52.0	66.4	86.0
% received 4+ ANC	34.4	34.4	42.0	6.1	14.8	30.0	18.1	27.9	45.0	27.8	37.0	52.0	17.8	25.8	40.4
ANC Components (in % of those who received ANC)															
Weight taken	85.8	91.4	94.9	59.9	70.0	83.8	71.0	82.7	92.1	75.0	86.3	89.5	72.2	81.2	88.9
Blood pressure measured	88.4	93.2	91.8	62.4	75.2	86.3	72.7	79.3	77.5	79.8	84.5	88.4	75.1	81.9	85.3
Urine sample taken	25.8	25.9	57.1	16.0	23.0	48.8	18.2	23.5	51.7	12.9	9.2	40.7	18.0	20.4	49.0
Blood sample taken	38.3	63.3	78.6	25.7	52.6	77.5	22.6	36.8	80.9	27.5	25.4	68.6	28.1	44.3	76.5
Iron supplement given	35.2	63.1	91.8	23.9	48.0	88.8	8.1	28.0	68.5	15.4	36.4	95.4	20.2	43.1	85.4
told about danger signs	20.0	28.9	53.0	4.4	15.9	39.0	4.2	17.5	33.0	6.2	18.0	58.0	7.0	18.7	43.6
told about breastfeeding	17.6	35.5	49.0	4.6	19.2	26.0	6.4	24.8	54.0	11.9	28.3	56.0	8.5	25.0	43.0
% TT2+ during their last pregnancy	43.3	42.8	30.0	37.4	38.7	25.0	38.5	48.4	64.0	49.2	55.8	59.0	41.0	45.4	43.3
Birth preparedness measures															
Any preparation	79.4	89.5	86.0	63.2	68.3	68.0	66.9	76.1	85.0	71.5	76.0	79.0	68.3	75.1	77.2
Financial preparations	14.3	33.5	9.0	17.3	34.8	10.0	21.7	37.4	36.0	29.3	31.3	30.0	20.4	34.6	21.1
Transport preparations	4.4	4.7	1.0	7.0	15.4	0.0	5.6	10.2	5.0	2.6	6.3	2.0	5.3	10.5	1.9
Food preparations	73.3	84.3	78.0	56.7	60.2	58.0	61.7	70.7	81.0	66.4	70.0	76.0	62.5	68.6	70.6
Arranging for a birth attendant	6.5	15.2	0.0	12.2	13.5	3.0	7.1	13.3	10.0	2.1	1.0	24.0	7.9	11.1	9.2
Identifying health facility for delivery	3.1	8.5	46.0	2.8	4.8	9.0	3.5	8.2	23.0	0.8	2.5	14.0	2.6	5.8	18.5
Preparing delivery materials	34.0	40.9	36.0	13.4	18.3	26.0	24.5	41.7	58.0	11.1	29.2	61.0	18.8	30.1	43.4

Table A1 continued …

	Tigray			Amhara			Oromia			SNNP			L10K Total		
	Dec 2008	Dec 2010	Nov 2013	Dec 2008	Dec 2010	Nov 2013	Dec 2008	Dec 2010	Nov 2013	Dec 2008	Dec 2010	Nov 2013	Dec 2008	Dec 2010	Nov 2013
Identifying blood donor	0.4	0.1	0.0	0.4	0.4	0.0	0.1	0.3	0.0	0.0	0.2	0.0	0.2	0.3	0.0
Safe and clean delivery															
% delivered at home	88.0	81.6	57.0	96.6	90.5	78.0	93.2	89.0	63.0	94.0	91.3	75.0	93.9	88.9	70.8
% institutional delivery	12.0	18.4	40.0	3.4	9.5	22.0	6.8	11.0	35.0	6.0	8.7	15.0	6.1	11.1	26.1
% delivered by health professional	18.5	26.2	40.0	6.8	11.3	24.0	11.0	16.1	35.0	10.3	15.5	18.0	10.4	15.7	27.5
% HEW-assisted deliveries	4.8	10.0	6.0	3.0	3.3	0.0	2.4	6.2	7.0	3.8	7.3	13.0	3.6	5.8	5.5
PNC															
% received any PNC	12.5	21.6	24.0	5.6	15.9	16.0	5.4	17.6	21.0	9.9	23.3	28.0	7.5	18.8	21.0
% received PNC in 2 days	3.6	7.4	14.0	0.7	4.1	7.0	1.4	4.2	9.0	2.4	10.0	16.0	1.6	5.8	10.5
Breast feeding practice															
Baby put to breast within an hour of delivery	40.0	53.9	52.0	20.2	34.2	42.0	64.7	65.9	78.0	60.7	67.9	82.0	43.3	52.5	61.6
First milk (colostrum) given to baby	47.4	69.4	77.0	32.6	43.9	58.0	50.1	57.8	78.0	52.9	52.0	82.0	43.6	53.0	71.0
Newborn health care practice/Cord care															
Cleanly cut cord	96.7	97.3	98.3	94.6	95.8	94.8	96.2	97.6	100.0	96.5	96.9	94.7	95.7	96.7	96.3
Cleanly tied cord	85.3	84.1	94.0	41.0	51.8	58.0	50.4	59.9	60.0	58.4	78.9	53.0	53.7	64.4	62.1
Applied nothing to cord	51.9	53.5	65.0	55.8	65.6	49.0	79.0	74.8	77.0	84.3	87.9	85.0	67.6	72.5	66.4
Newborn health care practice/Thermal care															
Dried & wrapped baby after delivery	66.2	74.6	68.0	74.5	67.7	55.0	69.8	88.4	75.0	69.9	67.6	75.0	71.1	74.1	66.3
Delay bathing newborn for >6 hours	27.2	37.4	62.0	39.0	49.0	49.0	12.6	32.4	67.0	23.6	44.2	68.0	27.2	42.0	59.6