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Community Based Newborn Care

Baseline Survey Report

Ethiopia, October 2014

On behalf of the Federal Ministry of Health of Ethiopia, the Baseline Survey of the Community Based Newborn Care (CBNC) programme was conducted by the Informed Decisions for Actions in Maternal and Newborn Health (IDEAS) project, London School of Hygiene & Tropical Medicine.

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Cover image caption: Newborn child at Dessie Referral Hospital in Amhara region, Ethiopia.

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Acronyms

Acronym	Definition
ANC	Antenatal care
BCC	Behaviour change communication
CBNC	Community Based Newborn Care
COMBINE	Community Based Interventions for Newborns in Ethiopia
DHS	Demographic and Health Survey
FP	Family planning
HEP	Health Extension Programme
HEW	Health Extension Worker
HMIS	Health Management Information System
iCCM	Integrated Community Case Management
IDEAS	Informed Decisions for Actions in Maternal and Newborn Health
IMNCI	Integrated management of newborn and childhood illness
ITN	Insecticide treated nets
IV	Intravenous
MNCH	Maternal newborn and child health
MNH	Maternal and newborn health
n/a	Not applicable
ORS	Oral rehydration solution
PHCU	Primary health care unit
PMTCT	Prevention of mother to child transmission of HIV
PNC	Postnatal care
PPC	Postpartum care
SD	Standard deviation
SNL	Saving Newborn Lives
SNNP	Southern Nations Nationalities and People
TT	Tetanus toxoid
TTC	Tetracycline

1. Executive summary

Photo: Girls near Zuqualla, Ethiopia
© Dr Neil Spicer

Community Based Newborn Care (CBNC) in Ethiopia is a national programme that aims to improve newborn survival through the Health Extension Programme (HEP).

Phase 1 of CBNC implementation was officially launched in Ethiopia in March 2013 and field staff training was completed in August 2014. CBNC implementation included all Primary Health Care Units[1] (PHCUs) in seven selected zones (92 woredas) of the country.

The London School of Hygiene & Tropical Medicine has been commissioned by the Ethiopian Ministry of Health to lead the Phase 1 evaluation, through the IDEAS (Informed Decisions for Actions in Maternal and Newborn Health) project. IDEAS is funded by the Bill & Melinda Gates Foundation and works in Ethiopia with its country level partner JaRco Consulting, an Ethiopia-based research consulting agency.

The objective of the CBNC Phase 1 evaluation is to gather, analyse and synthesise evidence to determine whether and how community based newborn care in four regions of Ethiopia leads to increased coverage of critical interventions along the continuum of care. The evaluation design of Phase 1 includes before-and-after coverage surveys of the critical maternal and newborn health interventions in intervention and comparison areas.[2] CBNC Phase 1 evaluation also includes a midline survey to examine supply-side factors at PHCU level; qualitative work to understand implementation processes; and tracking of contextual factors.

IDEAS began the groundwork for the CBNC Phase 1 evaluation in mid-2013. The baseline survey was conducted in the fourth quarter of 2013 and the overall evaluation is expected to be completed by 2016. The end-line survey is planned to take place approximately a year-and-half after the start of CBNC implementation.

The CBNC baseline survey was conducted in 12 zones across the four main regions of Ethiopia - Amhara, Oromia, SNNP and Tigray. Data were collected over the course of six weeks from October-November 2013. Overall, the sampling procedure for the baseline survey resulted in a representative sample of PHCUs in the selected zones. However, the zones included in the study are not a

1. The Primary Health Care Unit consists of a health centre together with the surrounding satellite health posts.
2. Comparison areas were selected from zones where CBNC roll-out is planned to be as late as possible. Our evaluation will compare changes from the baseline in Phase 1 areas with changes from the baseline in late-Phase 2 areas.

representative sample of the four regions. The baseline survey included seven CBNC implementation and five comparison zones. Selection of comparison zones was done based on the Ministry of Health's recommendation, with the understanding that CBNC implementation in these zones is likely to take place after the end-line survey has been conducted. Since the baseline survey, CBNC implementation has started in the seven intervention zones and implementation in the remaining comparison zones is scheduled to take place as part of Phase 2.

The sample size calculations for the household survey were based on detecting a change in the coverage of key interventions over the time of the study that can be attributed to the CBNC package. The proposed sample size of 10,450 households will allow us to detect differences in coverage rates of at least 10 percentage points in key interventions, including antenatal care (ANC), skilled birth attendance and postnatal care (PNC), with 80% power, 5% significance and assuming a design effect of 1.4 and 90% completeness.

This report presents the findings from the baseline survey. The primary presentation of the results is by region, which was recommended by the CBNC and iCCM Technical Working Group after the completion of the survey. Regional presentation highlights the baseline distribution of key indicators in the four regions, which can allow CBNC programme implementers to identify strengths and gaps, and direct their implementation efforts accordingly. However, caution should be taken when making comparisons between regions and with national statistics, as this study was powered for analysing differences between intervention and comparison areas only. These results are shown in Annexes II and III.

In this report we provide an executive summary (Chapter 1) and an introduction (Chapter 2), which provides a brief background on the status of maternal and newborn health (MNH) in Ethiopia and introduces the CBNC programme. An overview of the CBNC evaluation, with a focus on the baseline survey and survey methodology, is provided in Chapter 3. In Chapters 4 and 5 we present results from the health system and household surveys, respectively. A discussion of the results and limitations of the study are detailed in Chapter 6. A brief summary of the study by intervention and comparison areas is provided in Annex I. Detailed results from the health system and household surveys in these two arms are shown in Annexes II and III, respectively.

The status of the health system is presented in Chapter 4. During this survey, 206 PHCUs were visited. In each PHCU, the health centre and one randomly selected health post were

“Since the baseline survey, CBNC implementation has started in the seven intervention zones and implementation in the remaining comparison zones is scheduled to take place as part of Phase 2.”

visited to assess facilities' service status and readiness to provide MNH services, with a focus on CBNC programmatic aspects. In addition, interviews were conducted with 206 Health Extension Workers (HEWs) and 605 Health Development Army (HDA) leaders. HEWs and HDA leaders were asked detailed questions about their training, knowledge and practice in MNH services and their supervision.

Assessment of the PHCUs showed that there was a strong link between health centres and health posts, with 82% of health posts having received on average five supportive supervisory visits from health centres in the three months preceding the survey. Forty-five percent of health posts had received supportive supervision specific to Integrated Community Case Management (iCCM) in the same time period and the availability of 0-2 month iCCM registers was verified in 88% of health posts. In areas selected for CBNC intervention, the proportion of health posts with 0-2 iCCM registers increased to 91%, whereas in comparison areas it was 85%. Given that CBNC relies on the existing iCCM platform, the availability of iCCM services is promising, but health posts require more programme specific supportive supervision. HDA leaders also play a major role in the CBNC programme and in this survey almost all PHCUs had an established HDA system. HEWs interacted with HDA leaders regularly and provided them with training on different components across the continuum of care.

With respect to the health workforce, health centres on average had six satellite health posts and 10 HEWs, suggesting a relative shortage of HEWs. Verified checks on the availability of supplies showed that there was also a shortage of some maternal, newborn and child health-related job aids and forms. For example, the family health card (a MNH-related behaviour change communication (BCC) tool used by HEWs and HDA leaders to educate pregnant women and their families about important MNH messages) was available in only two-thirds of the surveyed health posts. Furthermore, only half of the HEWs had provided HDA leaders with training on how to use the family health card. In order for HDA leaders to undertake health promotion and counselling activities that improve MNH knowledge and health seeking behaviour, supplies of the family health card and training on its effective use is necessary.

Based on facility records, this survey showed that there were gaps in service utilisation for ANC and facility birth, however the largest gap was for service utilisation in the recommended four PNC visits. HEWs and HDA leaders

Photo: Girls in Addis Ababa, Ethiopia © Dr Neil Spicer

These results indicate that there is a need to strengthen the HEW and HDA platform and also address their training gaps to ensure that they promote and facilitate facility birth."

need training and support to improve uptake of home and facility-based PNC services in the community. Overall, the CBNC programme can focus on training HEWs and HDA leaders based on the gaps in their knowledge, training and practices that have been identified in this survey.

Chapter 5 describes household intervention coverage levels along the continuum of care, reflecting the different CBNC programme components. Sampled households were located within the catchment population of the surveyed health centres and health posts. Across 206 clusters, 10,295 household heads were present and agreed to participate in this study. Residing in these households were a total of 10,999 women of reproductive age (15-49 years old), of whom 925 had had a live birth in the 3-15 months preceding the survey. These women were asked questions about that birth.

In this study, 69% of women had one ANC visit and 39% had four or more visits. Among those that had an ANC visit, 66% sought care at a health centre. Only 29% of women had received an ANC visit in the first trimester. The mean gestational age at the first ANC visit was 16 weeks. Birth preparedness was much higher among women who had at least one ANC visit. Among those that had an ANC visit, 23% had attended a pregnant women's conference, which communicated the importance of institutional delivery and birth preparedness. However, PNC and newborn care were not adequately addressed. Pregnant women's conferences have the potential to be a platform where important topics across the continuum of care are discussed, particularly newborn care seeking behaviour.

Twenty-three percent of women delivered in a health facility (a health centre or hospital) and an additional 3% delivered in a health post. The remaining women gave birth at home. Referrals for complicated deliveries were low. Furthermore, among women who delivered at home and were referred for a complication, few were able to reach the next level of health facility. Overall, very few women and their newborns received postpartum and postnatal care. These results indicate that there is a need to strengthen the HEW and HDA platform and also address their training gaps to ensure that they promote and facilitate facility birth.

There were notable differences in newborn care practices by place of delivery. Fewer cases of newborns with a breathing problem were identified among home births, indicating that breathing problems might not be recognised by the birth attendant. Dry cord care was reported by 73% of all women. Compared with home deliveries, a higher percentage of women who delivered in a facility said nothing was applied on the newborn's

cord (68% vs. 89%). With CBNC, the Ministry of Health is changing the recommendation from dry cord care to care with chlorhexidine. Careful consideration is needed to ensure that changing the dry cord care recommendation to cord care with an antiseptic (chlorhexidine) does not increase harmful traditional practices (e.g. application of butter, oil and ash to the cord). In facility births, 78% of newborns had their bathing delayed until the second day of life. In contrast, bathing was delayed in only 36% of home births. With respect to breastfeeding, timing of feeding initiation and exclusive breastfeeding during the neonatal period were both similar by place of delivery.

Only 41% of women sought care for newborns with a reported illness. Care seeking for newborns with severe infection symptoms and instances where there was neonatal death were even lower. This has major implications for CBNC. The CBNC programme needs to identify the appropriate training, support, and demand generation activities that can allow HEWs and HDA leaders to have contact with recently delivered mothers, to provide education on identifying newborn danger signs so that they may seek care. HEWs and HDA leaders also need access to newborns, so that they can identify the danger signs and ensure that sick newborns receive and complete their treatment.

With respect to intervention and comparison areas, while there were a few significant differences at the health facility level, the two areas were similar along a majority of indicators relating to HEWs and HDA leaders. At the household level, intervention and comparison areas were also similar in key indicators across the continuum of care.

Overall, this survey presents a picture of the health system's readiness to provide the CBNC programme, as well as the existing level of coverage of life-saving behaviours and interventions for mothers and their newborns. Currently, there is a good PHCU linkage which can be further strengthened by the CBNC programme. HDA leaders were present in almost all the clusters visited and were well linked with the HEWs. At the household level, two-thirds of women had received an ANC visit during their pregnancy. There was an increase in facility births from past estimates, with about a quarter of women delivering in a health facility.

Based on the identified gaps from the facility and household survey findings, below are the overall key recommendations for Phase 1 areas of CBNC:

- Increase the availability of job aids specifically associated with newborn illness diagnosis and management
- Increase coverage of training on the use of the family health card by HDA leaders to promote pregnancy care and newborn health promotion
- Focus training of HEWs and HDA leaders on their role definition in promoting facility birth
- In addition to promoting facility delivery, strengthen the referral system for home births to meet the needs of delivery complications and newborn illnesses
- Provide carefully crafted messages to accompany the introduction of cord care with chlorhexidine
- Increase health promotion activities that can improve the uptake of postpartum care and PNC (e.g. using the opportunity of pregnant women's conferences to promote PNC and care seeking for sick newborns)
- Enhance supervisory support to ensure the consistent availability of drugs at health post level
- Strengthen record keeping, particularly as it relates to having consistent and standardised data on newborn care.

"Overall, this survey presents a picture of the health system's readiness to provide the CBNC programme, as well as the existing level of coverage of life-saving behaviours and interventions for mothers and their newborns."

2. Introduction

Photo: Rural transport, Zuqualla, Ethiopia © Dr Neil Spicer

2.1 Maternal and Newborn Health in Ethiopia

Over the course of 20 years, Ethiopia has reduced under-5 mortality by two thirds, allowing the country to reach its Millennium Development Goal three years ahead of the 2015 deadline.[3] In the same period however, neonatal mortality has shown a slow decline.[4] Approximately 42% of under-5 mortality is among neonates.[5] The 2013 UNICEF Levels & Trends in Child Mortality report estimated that there are 29 deaths in the first 28 days of life per 1,000 live births.[6] Maternal mortality is also high in Ethiopia. In 2010 the maternal mortality ratio was estimated at 350 deaths/100,000 live births.[7]

Preterm birth, asphyxia and sepsis/ meningitis/ tetanus are reported to be major causes of neonatal mortality.[8] Given the high level of home births in Ethiopia (90% from 2011 Ethiopia Demographic and Health Survey (DHS)[5] and 80% from 2011/2012 Health Management Information System data (HMIS)[9]), limited care for newborns in health facilities and inadequate newborn care seeking practice, essential newborn care in communities and primary health facilities is a promising way forward.

2.2 Community Based Newborn Care

Building on lessons learned from integrated Community Case Management of childhood illness (iCCM), the Community Based Newborn Care (CBNC) programme aims to reduce newborn mortality through strengthening the Primary Health Care Unit (PHCU) approach and the Health Extension Programme (HEP). This goal will be achieved by enhancing linkages between health centres and health posts and the performance of Health Extension Workers (HEWs) and the Health Development Army (HDA), to improve antenatal, intrapartum and newborn care through the "four Cs": (1) prenatal and postnatal **Contact** with the mother and newborn; (2) **Case-identification** of newborns with signs of possible severe bacterial infection; (3) **Care**, or treatment that is appropriate and initiated as early as possible; and (4) **Completion of** a full seven-day course of appropriate antibiotics. CBNC implementation involves the scaling-up of community based maternal and newborn health (MNH) services including:

> In the [seven phase 1 CBNC] zones, a total population of over 13.2 million will benefit from the interventions, with 2.8 million women of reproductive age and over 400,000 expected deliveries per year."

1. Early identification of pregnancy
2. Provision of focused antenatal care (ANC)
3. Promotion of institutional delivery
4. Safe and clean delivery including provision of misoprostol in case of home deliveries or deliveries at health post level
5. Provision of immediate newborn care, including application of chlorhexidine on the cord
6. Recognition of asphyxia, initial stimulation and resuscitation of the newborn baby
7. Prevention and management of hypothermia
8. Management of pre-term and/or low birth weight neonates, and
9. Management of neonatal sepsis and very severe disease at community level.

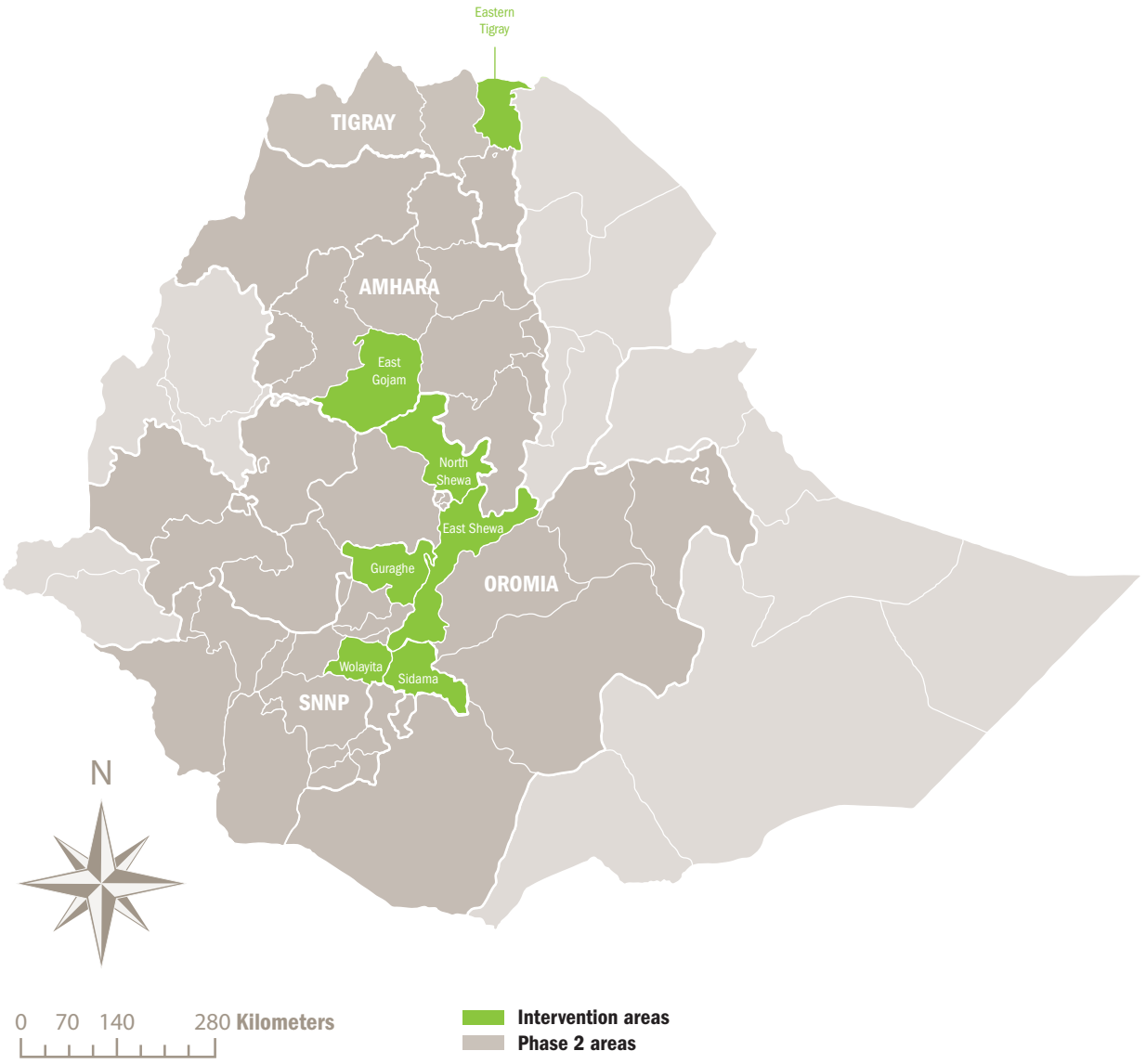
The CBNC programme, which was launched in March 2013, will be implemented in two major phases. Phase 1 CBNC service provision began in March 2014 as a proof of concept in seven zones across four regions of Ethiopia: Amhara (East Gojam zone), Oromia (North and East Shewa zones), Southern Nations Nationalities and Peoples' (SNNP) Region (Wolayita, Gurage and Sidama zones) and Tigray (Eastern zone).(Figure 2.1) In these seven zones, a total population of over 13.2 million will benefit from the interventions, with 2.8 million women of reproductive age and over 400,000 expected deliveries per year. This initiative will then be scaled-up to the remaining zones in the four regions and beyond (Phase 2), and will be refined on the basis of lessons and experiences from the evaluation of the initial seven zones.

The CBNC programme in Ethiopia has the following overall objectives:

1. To further strengthen the PHCU approach and the HEP by improving linkages between health centres and health posts and the performance of HEWs, to scale up community based MNH services, including the introduction of newborn sepsis management;
2. To strengthen the capacity of health centres in providing quality maternal, newborn and child health (MNCH) services;
3. To further strengthen logistics and information systems within the PHCU context;
4. To improve maternal and newborn care practices and care seeking through the HDA and other existing effective community mobilisation mechanisms; and
5. To draw lessons and experiences from the initial phase to inform the scale-up phase (Phase 2).

3. UNICEF (2013). Ethiopia meets MDG 4 by cutting Under 5 mortality By Two-Thirds Since 1990. (2013). www.unicef.org/ethiopia/events_13459.html
4. World Health Organisation: Estimates. In State of the World's Newborns. (2001). Washington, DC: Saving Newborn Lives, Save the Children/ USA.
5. Central Statistical Authority and ICF International: Ethiopia Demographic and Health Survey. (2012). Addis Ababa, Ethiopia and Calverton, Maryland, USA: Central Statistical Agency.
6. UNICEF (2013). Levels & Trends in Child Mortality: Estimates Developed by the UN Inter-agency Group for Child Mortality Estimation. New York: UNICEF.http://www.who.int/maternal_child_adolescent/documents/levels_trends_child_mortality_2013.pdf?ua=1
7. Maternal mortality (1990 to 2010). WHO, UNICEF, UNFPA and The World Bank estimates.
8. Countdown to 2015 (2012). The 2012 Report. Maternal Newborn and Child Survival: Ethiopia www.countdown2015mnch.org/documents/2012Report/2012/2012_Ethiopia.pdf
9. Federal Ministry of Health of Ethiopia (2012). Health Sector Development Program- IV. Annual performance report.

Figure 2.1 - Four regions of Ethiopia showing the seven CBNC Phase 1 implementation zones



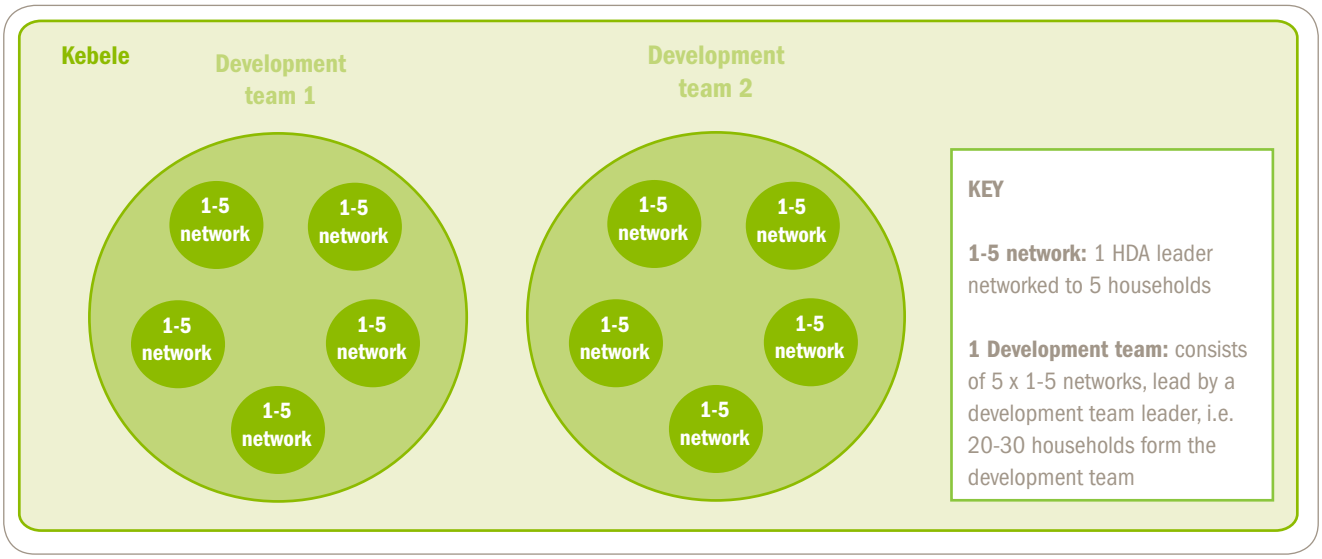
The HEP and HDA are the major pillars for the CBNC programme. The HDA network plays an important role in mobilising communities to increase demand and utilisation of MNH services; it is designed to expand best practices of health on a large scale within a short period of time. The assumption behind this strategy is that the community will be enabled to produce and sustain their own health through the implementation of all HEP packages. There are two main structures in the HDA, the development team and the 1-5 network, which are the main gears for its successful implementation. At kebele (village) level, 20-30 households form the development team and each team consists of 4-5 networks of 1-5 network leaders (Figure 2.2). The 1-5 network leaders are selected by the development team leader, based on their implementation of the Health Extension Package.

2.3 Organisation of baseline survey report

This report presents data collected in October 2013. The next chapter provides an overview of the CBNC evaluation with a focus on the baseline survey and survey methodology. Results are presented in Chapters 4 and 5. Chapter 4 presents the status of the health system. It describes the readiness of facilities to provide CBNC services. This section also includes results from the HEW and HDA survey, describing their knowledge, services, training and supervision. Chapter 5 describes household intervention coverage levels along the continuum of care, reflecting the different CBNC programme components. In Chapter 6, we present a discussion of the findings as well as the limitations of the study. Results by intervention and comparison area are shown in Annexes II and III.

“The HDA network plays an important role in mobilising communities to increase demand and utilisation of MNH services; it is designed to expand best practices of health on a large scale within a short period of time.”

Figure 2.2 - HDA system relationships



3. Community Based Newborn Care Evaluation

3.1 Objective

The objective of the CBNC Phase 1 evaluation is to gather, analyse and synthesise evidence to determine whether and how community based newborn care in four regions of Ethiopia leads to increased coverage of critical interventions along the continuum of care, reflecting the nine programmatic components. The evaluation design of Phase 1 includes before-and-after coverage surveys of the critical MNH interventions in intervention and comparison areas (Figure 3.1). The CBNC Phase 1 evaluation also includes a midline survey to examine supply-side factors at PHCU level, including health centres, health posts, HEWs, and the HDA; qualitative work to understand implementation processes; and tracking of contextual factors.

3.2 CBNC baseline survey

The baseline survey aims to assess the coverage level of critical MNH interventions reflecting the programmatic components of CBNC in the seven intervention and five comparison zones. Additionally, it assesses the existing capacity of health facilities, HEWs and the HDA to deliver the different components of the CBNC programme. This report presents findings from the CBNC baseline evaluation survey.

> The baseline survey aims to assess the coverage level of critical MNH interventions reflecting the programmatic components of CBNC in the seven intervention zones and five comparison zones

3.3 Methodology

3.3.1 Study timeline

The preparation and formative research for the CBNC baseline evaluation started in May 2013. The CBNC baseline survey was conducted in 12 zones, over a six-week period from October-November 2013.

3.3.2 Survey population

A representative sample of PHCUs was drawn from each of the 12 zones across the four regions. Zones however, were not a representative sample of the regions from which they were drawn as zone selection was based on the CBNC Phase 1 (intervention zones) and Phase 2 (comparison zones) implementation plan.

A Facility Readiness survey was conducted at the sampled health centres and health posts. Data were also collected from staff affiliated to the health centres (facility in-charge) and health posts (HEW and HDA leaders), who provide services along the continuum of care to their target household population.

The household study population comprised women aged 15-49 who had given birth within 3-15 months prior to the survey (i.e. July 2012-June 2013). These women were drawn from a representative sample of 10,450 households served by the selected PHCUs.

3.3.3 Survey content

The baseline survey used multistage cluster sampling at woreda, PHCU and household levels. At each selected PHCU we conducted:

- A **Health Facility Survey** of a health centre and a satellite health post to assess facilities' readiness to provide CBNC services on the day of the survey. The head of the health centre and the HEW were asked about staff employed in their facilities,

Figure 3.1: Intervention and comparison zones selected for CBNC Phase 1 evaluation.

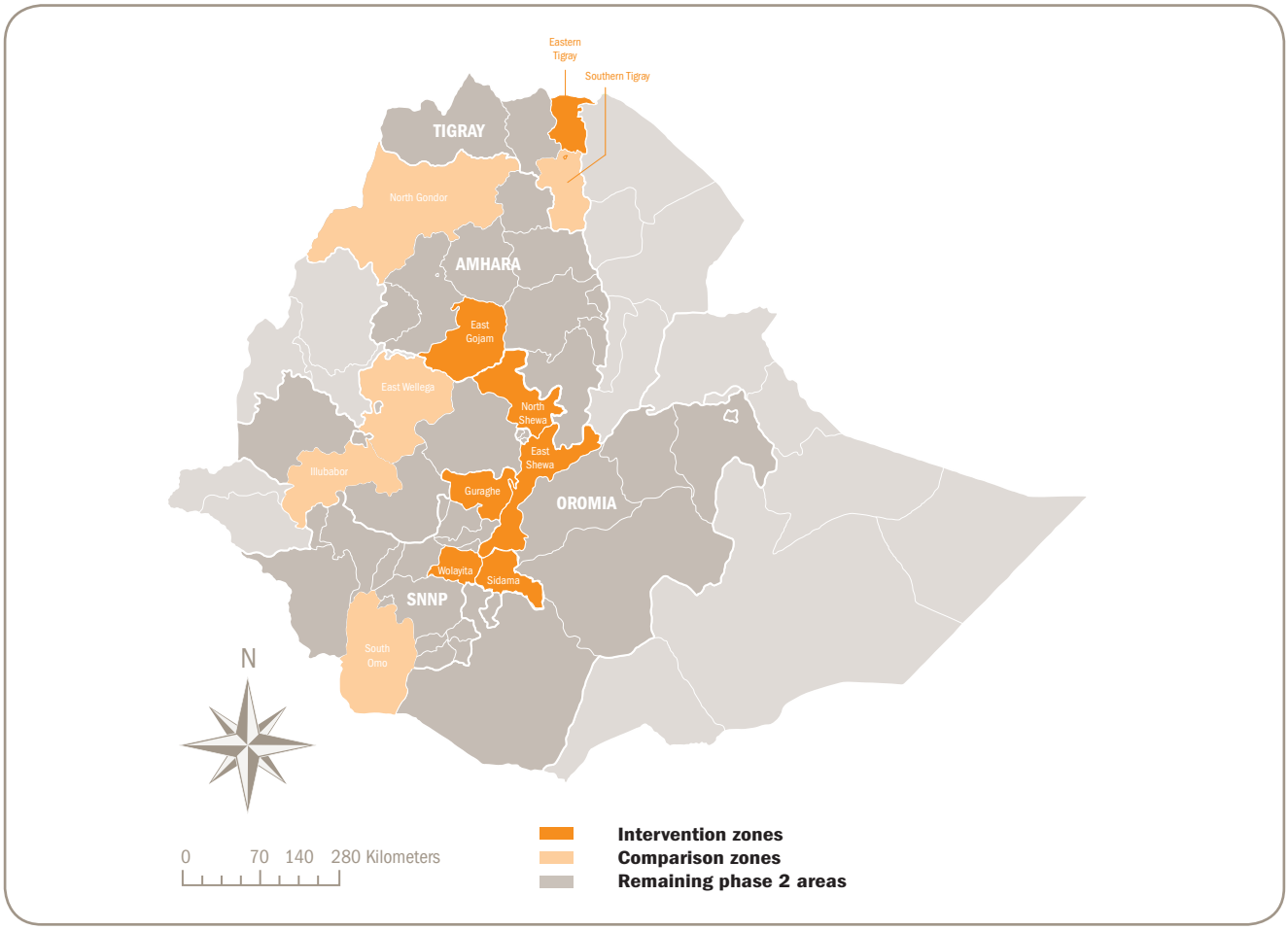


Table 3.1 Regions, zones, woredas and PHCUs sampled for CBNC Phase-1 evaluation

Region	Zones	Intervention/comparison	Sampled woredas	Sampled PHCUs
4	**12**		**101**	**209**
Amhara	East Gojam	Intervention	10	20
	North Gondar	Comparison	16	32
Oromia	North Shewa	Intervention	7	14
	East Shewa	Intervention	6	12
	East Wellega	Comparison	12	24
	Ilu Aba Bora	Comparison	16	32
SNNP	Gurage	Intervention	7	14
	Sidama	Intervention	10	20
	Wolayita	Intervention	7	14
	South Omo	Comparison	2	11
Tigray	Eastern	Intervention	5	10
	Southern	Comparison	3	6

supportive supervision and services that were consistently available in the last three months. Interviewers also conducted a register review to ascertain information on the target population served by the health facilities and attendance for ANC, delivery, postnatal care (PNC) and sick newborns in the three months preceding the survey. They also assessed and verified the availability of equipment, job aids and medicines at the time of the survey.

- A **HEW and HDA Survey** to ask about their background, their knowledge of the relevant CBNC components, MNH services they provided in the community in the three months preceding the survey, their supervision in the three months preceding the survey, and training received in the previous 12 months. Furthermore, HEWs and HDA leaders were asked about their linkages (frequency of meeting, reporting and supervision) and MNH-related community mobilisation activities.
- A **Household Survey** in a cluster of households in the catchment area of the selected health post. This survey consisted of three modules. **The first** was a household module that asked the household heads about ownership (e.g. of commodities, land and livestock) and characteristics of the household (e.g. plumbing and electricity); and to list all the people that had lived in the house for the last three months prior to the survey. **The second** module asked all resident women of reproductive age (15-49) questions about their birth history. **The third** module asked women who reported a birth in the 3-15 months prior to the survey in module two, about their health seeking behaviours and type of care they received across the continuum of care for themselves and their newborns. Questions were asked separately about the postpartum and the postnatal periods, as the postpartum period was defined as the first six weeks, or 40 days after birth, whereas the postnatal period was defined as the first 28 days after birth. Given that CBNC focuses on reducing neonatal mortality, the survey questions assessed the practices related to the neonatal period, including nutrition and health seeking behaviour.

3.3.4 Sample size and selection

The baseline survey was conducted in 12 zones across the four regions (Amhara, Oromia, SNNP and Tigray). In each of the seven intervention zones, half the woredas were chosen at random (101 out of the 210 woredas).[11] In the five comparison zones more than half of the woredas were randomly sampled to match the total number of sampled woredas in intervention zones. Simple random sampling was then used to select two PHCUs from each of the 101 selected woredas (total PHCUs = 209). (Table 3.1) From the selected PHCUs, a list of all health posts in each PHCU was produced and simple random sampling was used to select one health post from each PHCU (total health posts = 209). In the health posts, HEWs provided a list of HDA leaders in the kebele, from which three were randomly selected for an interview (total HDA leaders= 627). From the selected health post, simple random sampling was used to select one gote (sub-village-kuseht in Tigray) served by that health post. Random sampling was again used to select 50 households from the selected gote (total households = 10,450). All households in the selected gote were numbered from one to the maximum number of households. If the selected gote had fewer than 50 households, the nearest households from a neighbouring gote were added to make

11. In South Omo, where the majority of the woredas are semi-pastoralist, only the two woredas that are agrarian were included. We then randomly selected four PHCUs from one woreda and another seven PHCUs from the second woreda.

12. In Ethiopia, SNL conducted the COMBINE trial to strengthen and evaluate the effect of a package of community-based innovations for newborns to support the Government's HEP, such as the management of neonatal sepsis by government HEWs. The CBNC programme is an initiative that is heavily informed by the findings of the COMBINE study.

the total up to 50. In gotes that had more than 50 households, the households were selected from the list at random. This resulted in a total of 209 clusters, where each cluster consisted of a health centre, a satellite health post, three HDA leaders and 50 households in the catchment area of the selected health post.

Overall, the sampling procedure for the baseline survey resulted in a representative sample of PHCUs in the selected zones. However, the zones included in the study are not a representative sample of the four regions. Zone selection was based on CBNC implementation, which will take place in a phased manner.

This study design allows the measurement of the change in coverage, by comparing births from baseline birth cohort with births from the end-line birth cohort in CBNC intervention and comparison zones.

The sample size calculations for the household survey were based on detecting a change in the coverage of key interventions over the time of the study that can be attributed to the CBNC package. The total fertility rate in Ethiopia is estimated to be 4.8 (Ethiopia DHS preliminary report, 2011), suggesting that a cross-sectional survey will find one woman between the ages of 15 and 49 who had had a live birth in the previous 3-15 months in 10% of all households. The proposed sample size of 10,450 households will allow us to detect differences in coverage rates of at least 10 percentage points in key interventions, including ANC, skilled birth attendance and PNC, with 80% power, 5% significance and assuming a design effect of 1.4 and 90% completeness.

3.3.5 Survey tool development

The questionnaires were developed specifically to evaluate the CBNC programme. To better understand the operationalisation of CBNC, the study team conducted formative research in areas where the precursors to CBNC, namely iCCM and Saving Newborn Lives' (SNL) Community-Based Intervention for Newborns in Ethiopia (COMBINE),[12] were implemented. In these woredas, the study team

Photo: Formative research, Debre Zeit, Ethiopia © Neil Lensink

interacted with the woreda health offices, health centre staff members, HEWs and HDA leaders, as well as iCCM and COMBINE project officers. Researchers attended the CBNC master training of trainers and reviewed the training materials. The survey modules also included previously validated questions where possible. Once questionnaires were developed in English, they were translated and then pre-tested in iCCM woredas, both in the presence and absence of the COMBINE project.

3.3.6 Research ethics

The study was approved by the Institutional Review Boards of the London School of Hygiene & Tropical Medicine; the Ethiopian Science and Technology Ministry; and Oromia, Amhara, SNNP and Tigray Regional Health Bureaus. All respondents provided informed, voluntary written consent prior to participating in this study.

3.3.7 Survey implementation

The CBNC field survey was conducted by JaRco Consulting (http://jarrco.info/). IDEAS assigned a full-time survey coordinator to work with JaRco on ensuring data quality. The IDEAS country coordinator and researchers assigned by JaRco were also closely involved in coordinating the survey work in different regions.

Data were collected using paper questionnaires. The questionnaires were prepared in English and translated into three local languages – Amharic, Oromifa and Tigrigna – and checked against the English version for content and consistency. The questionnaires were pre-tested in all the local languages prior to the start of the data collectors' training.

The field survey was conducted by 40 teams, each team consisting of a supervisor and four enumerators. Enumerators were hired either from the zone where the survey took place or from regional capitals, to ensure that they knew the local language and culture. Experienced supervisors were selected from JaRco's records or hired based on their survey supervision experience and knowledge of the local language.

Two levels of training were conducted. **First**, 40 supervisors were trained centrally in Addis Ababa. The supervisors' training was facilitated by experienced IDEAS and JaRco staff members who were involved in designing the survey tools. The training provided the supervisors with the general background and objectives of the survey, and each question of every survey tool was discussed. The supervisors' training also included techniques employed in ensuring data quality, supervision methods and the logistics of survey equipment such as GPS units and reporting systems.

“The field survey was conducted by 40 teams, each team consisting of a supervisor and four enumerators. Enumerators were hired either from the zone where the survey took place or from regional capitals, to ensure that they knew the local language and culture.”

The **second** level of training was conducted among enumerators in four locations – Addis Ababa for the Oromia team, Debre Markos for the Amhara team, Butajira for the SNNP team and Mekele for the Tigray team. IDEAS and JaRco researchers involved in designing the questionnaires were present at each of the trainings. During the enumerators' training, group discussions were led by the supervisors, who were already familiar with the questionnaires, while the overall training was overseen by IDEAS and JaRco researchers. Each question was discussed during the enumerators' training. In addition, field tests were conducted by all the teams. Feedback was collated by regional coordinators and incorporated into all languages centrally at JaRco.

During the survey, supervisors were responsible for contacting local authorities, acquiring permits, planning daily activities, monitoring performance, and conducting interviews at the health centres and health posts. At the end of each day, supervisors carried out a preliminary check of the questionnaires completed by each enumerator for data completeness and accuracy. Supervisors also observed at least two interviews, re-interviewed at least one per cluster and conducted spot-checks. Furthermore, they ensured that three call-backs were made for each eligible household, individual, health facility, HEW and HDA leader before enumerators could label households or individuals as unavailable. Supervisors were responsible for ensuring that all eligible clusters, households and individuals were interviewed; all errors were corrected; and all completed questionnaires and consent forms were correctly labelled and sent back to the JaRco office. They were also required to communicate regularly with the regional survey coordinator (IDEAS and JaRco researchers) and alert

coordinators of any difficulties.

To ensure that implementation of the survey went as planned, IDEAS and JaRco researchers involved in designing the questionnaire worked as regional coordinators during the survey period – each region had one regional survey coordinator. The regional coordinators visited the regions to provide supportive supervision and to troubleshoot any problems arising.

3.3.8 Data management and analysis

Questionnaires were transported from the field to Addis Ababa regularly and then entered into CSPro survey software at the JaRco office. Each questionnaire was entered into the software twice, by two different members of the data-entry team. The two electronic versions of each questionnaire were compared and reconciled by a JaRco data supervisor. Questionnaires that were double-entered, reconciled and checked had their data transmitted as CSPro text files to the IDEAS Data Manager at the London School of Hygiene &Tropical Medicine. Paper questionnaires which had their data entered into CSPro software as described above will be stored securely at the JaRco office for a period of three years.

Analysis was carried out using Stata 13. For the baseline report, the indicators have been tabulated by region (See Annexes II and III for indicators tabulated by intervention/comparison for which the analysis accounts for clustering). Descriptive statistics for continuous variables include the means, standard deviation and the number of observations. Categorical variables have been presented as numbers and percentages (with confidence intervals for intervention/comparison analysis). Due to the high response rate for health facilities, HEWs and HDA leaders, missing data were included in the denominator of categorical variables. However, for continuous variables and household data, due to the variable response rate, missing data were excluded from the analysis. This survey was powered for a comparison between CBNC intervention and comparison areas. Hence, as the survey was not sufficiently powered, no statistical analysis was undertaken for regional comparisons. Numbers and percentages presented are therefore simply the unweighted tabulations of data from the survey. Confidence intervals given in the intervention comparison area tables have been adjusted for clustering at the health centre level. Again, no weighted summaries have been given as the intention of the survey was not to produce population estimates.

Photo: Tackling difficult terrain during formative research, Ethiopia © Neil Lensink

4. Results: Health System Status

In this section, we explore the current health system status and CBNC readiness for the 206 PHCU clusters that were visited during the survey.

Three inaccessible[13] clusters (two from Amhara and one from SNNP region) were dropped from the study. Below we present the results from 206 health centres, 206 health posts, 206 HEWs, and 605 HDA leaders. For health centres and health posts, the survey assessed facilities' service status and readiness to provide MNH services with a focus on CBNC programmatic aspects. For HEWs and HDA leaders, we present data on training, knowledge and practice in MNH services.

13. A facility was considered to be inaccessible if the woreda health office representative informed the survey supervisor that the facility could not be reached by vehicle (difficult topography) and the walking distance was greater than five hours.

Photo above: Newborn child at Dessie Referral Hospital in Amhara region, Ethiopia. © Michael Tsegaye/Save the Children

Photo opposite: Carrying eucalyptus branches to market, Entoto Hills, Ethiopia © Dr Neil Spicer

4.1 Health Centre

In the first part of this section, we present information on the target population under the surveyed health centres and the staffing profile of the PHCUs (health centre and satellite health posts). This is followed by a description of the facilities' infrastructure and availability of job aids, administrative forms, functional equipment, supplies, and drugs that are necessary to provide MNH services. In the last part of this section, we present information on MNH services routinely offered at the health centre and an analysis of the level of service utilisation in the three months preceding the survey.

4.1.1 Recorded target population served by the health centre and description of the facility

By design, one health centre serves up to 25,000 people and in this study health centres on average covered a total population of 23,090 people, 4,750 households and 5,520 women of reproductive age. Regional distribution of the target population is shown in figures 4.1-4.5. Of the four regions, SNNP, which has a high population density, showed a larger mean number of population, households and women of reproductive age.

In this study, health centres had, on average, seven nurses, two midwives, one health officer and one pharmacist (Figure 4.6). This distribution was similar across regions, except in Oromia where the data suggest that health centres on average had fewer nurses. As part of the primary health care unit, health centres on average had six satellite health posts and 10 HEWs.

Figure 4.7 shows the distribution of health posts and HEWs by region. By design, each health post should be staffed by two female HEWs and in this study Amhara and Oromia had twice as many HEWs as health posts. However, the data suggest that there was a relative shortage of HEWs in Tigray and SNNP.

Assessment of the facilities' infrastructure showed that a little over half of the health centres had electricity and 59% had piped water. Almost all had patient toilets and a functional refrigerator (92% and 94%, respectively). However, health centres had more electrical equipment and toilets than they had supplies of electricity and water. Motorised transport was available in 42% of the facilities surveyed, the highest being in Oromia region (Table 4.1). Across all four regions 38% of health facilities had a motorcycle, 23% had a car/ambulance and 8% had a three-wheeler.

Figure 4.1 Average health centre catchment population, by region (N=205)

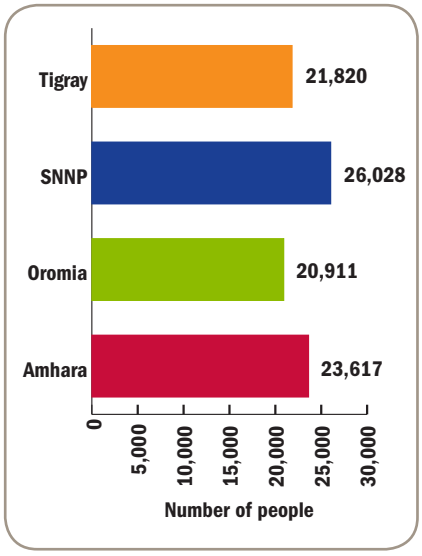


Figure 4.2 Average number of households in a health centre catchment area, by region (N=186)

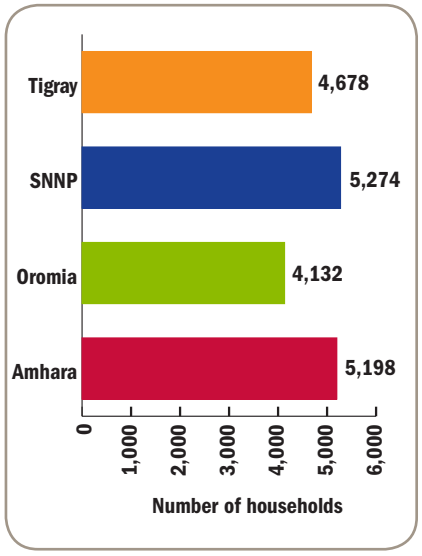


Figure 4.3 Average family size per household in a health centre catchment area, by region (N=186)

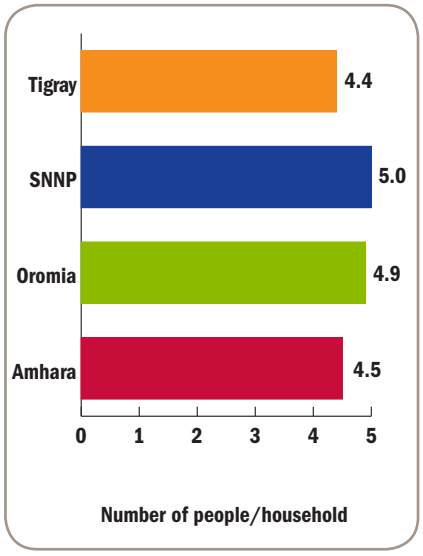


Figure 4.4 Average number of women of reproductive age in a health centre catchment area, by region (N=154)

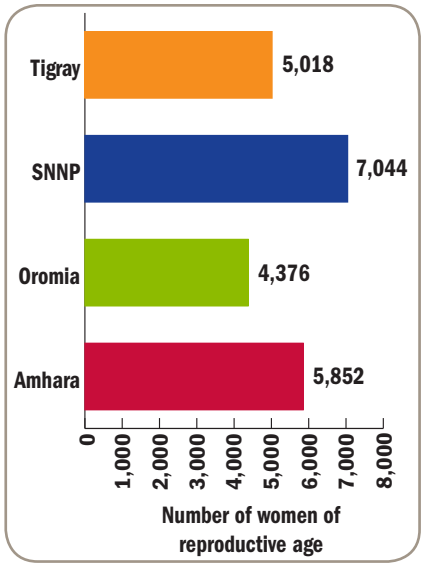


Figure 4.5 Average number of women of reproductive age per household in a health centre catchment area, by region, (N=144)

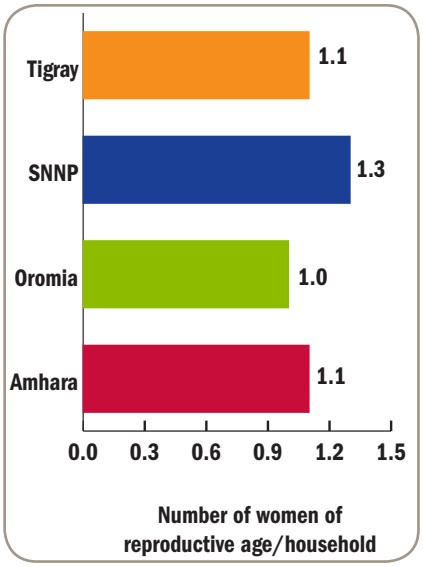


Figure 4.6 Average number of staff members in a health centre (N=205)

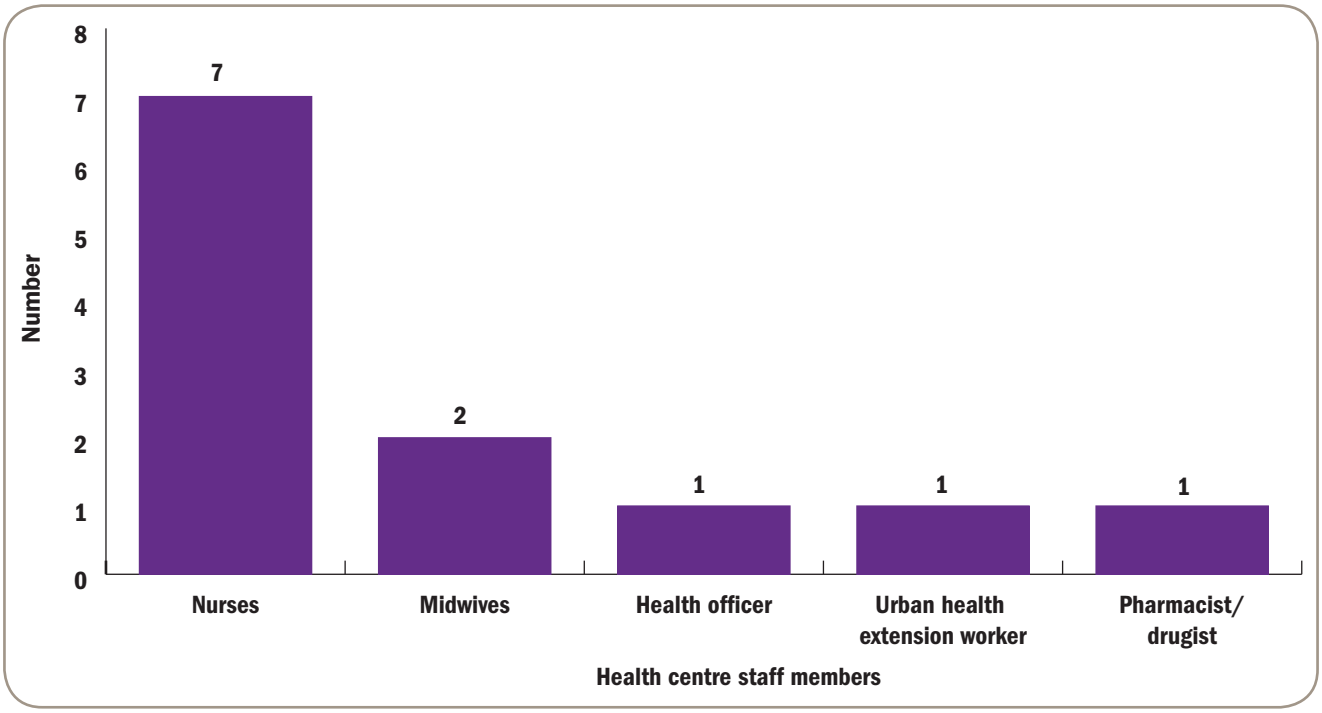
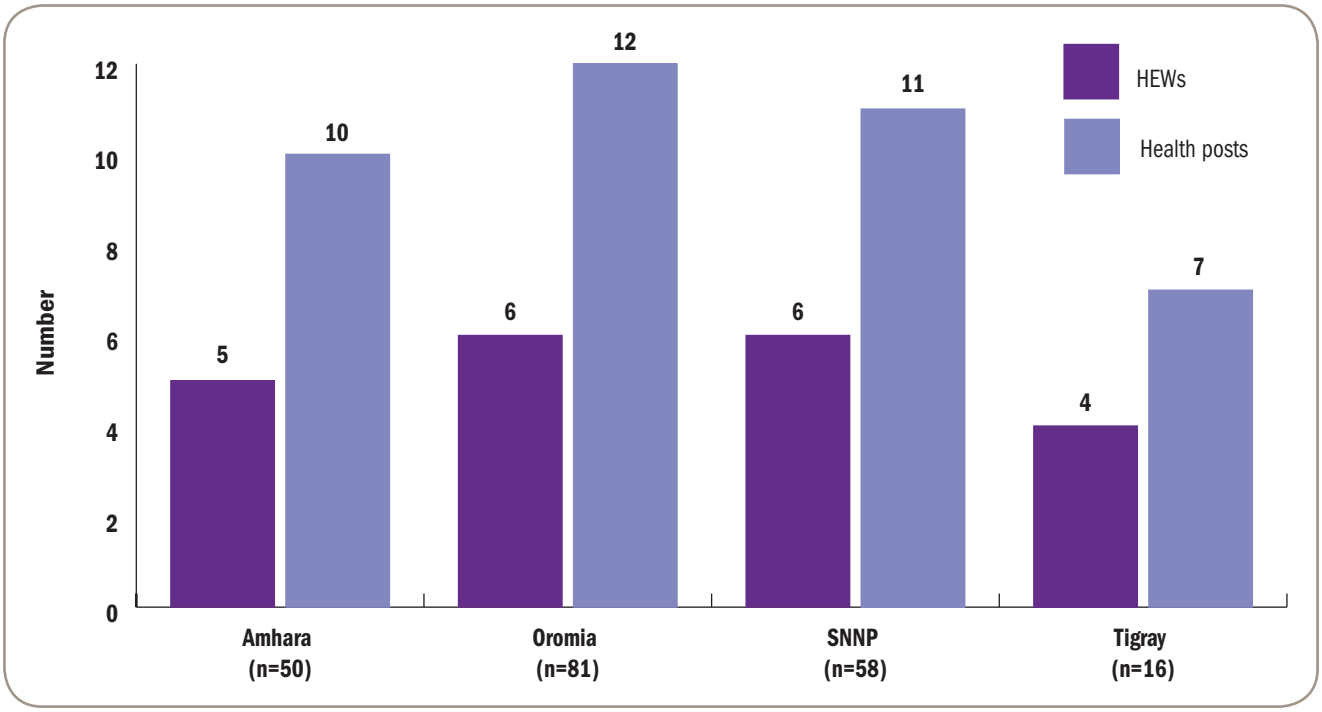


Figure 4.7 Average number of health posts and HEWs in a health centre catchment area, by region



The availability of **job aids** and **administrative forms** for providing the CBNC programme related maternal, newborn and child health (MNCH) care are presented by region in Table 4.1. The family health card is a MNH related behaviour change communication (BCC) tool used by HEWs and HDA leaders to educate pregnant women and their families about important MNH messages. The Integrated Management of Childhood Illnesses (IMNCI) registration books and chart booklet are aids used for assessing, classifying and treating a sick newborn/child. Administrative tools included a stock and bin card (drug inventory system), birth preparedness and complication readiness forms (for recording information such as place of delivery, transport, money, birth assistant and supplies for delivery) and supervision checklist forms (used by the health centre to monitor and assess the health posts' activities, services, supplies and coverage of target indicators).

Over 80% of all the facilities had family heath cards, vaccination cards, stock and bin cards, and IMNCI registration books and chart booklets. Approximately 90% of facilities had a pregnant woman and outcome registration book. Three-quarters of facilities had supervision checklist forms and a similar number had drug request and resupply forms. The data suggest differences in the proportions of health centres having the listed job aids with the lowest proportion observed in Oromia.

Table 4.1 Aspects of the structure and function of health centres, by region

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of facilities	**50**	**82**	**58**	**16**
Facility description				
Piped water	35 (70)	45 (55)	32 (55)	9 (56)
Electricity supply	25 (50)	45 (55)	30 (52)	11 (69)
Functional steriliser	37 (74)	62 (76)	39 (67)	13 (81)
Functional fridge	48(96)	75 (92)	54 (93)	16 (100)
Patient toilet	43 (86)	74 (90)	57 (98)	16 (100)
Functional motorised transport	10 (20)	51 (62)	19 (33)	6 (38)
MNCH job aids and administrative forms				
Family health cards	39 (78)	62 (76)	53 (91)	13 (81)
Vaccination cards	43 (86)	67 (82)	51 (88)	16 (100)
Stock card/bin card	46 (92)	55 (67)	50 (86)	15 (94)
Request and resupply form	41 (82)	53 (65)	46 (79)	13 (81)
Birth preparedness and complication readiness form	36 (72)	46 (56)	36 (62)	11 (69)
Supervision checklist form	39 (78)	57 (70)	48 (83)	14 (88)
Young infant record form	27 (54)	47 (57)	30 (52)	13 (81)
IMNCI registration book 0-2 months	44 (88)	51 (62)	56 (97)	14 (88)
IMNCI registration book 2-59 months	49 (98)	60 (73)	56 (97)	15 (94)
IMNCI chart booklet	42 (84)	58 (71)	56 (97)	15 (94)
Pregnant woman and outcome registration book	49 (98)	68 (83)	54 (93)	16 (100)

4.1.2 Equipment, supplies and medicine available on the day of the survey

As shown in Table 4.2, this survey assessed and verified the availability of equipment, supplies and medicines necessary to provide basic MNH care services. Overall, over 90% of the facilities had an examination couch, a blood pressure cuff, a stethoscope and an infant scale. An Ambu bag, tape measure and a suction bulb were available in over 80% of the facilities. Half of the facilities were equipped with privacy curtains. A warmer for newborn care was available in 23% of the facilities.

Over 90% of facilities had surgical gloves, syringes with needles, and intravenous (IV) cannula. With respect to supply of diagnostic kits to provide MNH care, the majority of health centres had HIV (94%), pregnancy (87%) and urine dipstick (80%) test kits. Less than half the facilities had syphilis, blood glucose and blood haemoglobin test kits. The assessed supplies were available at a higher percentage of facilities in Tigray than in the other three regions.(Table 4.2)

As part of the CBNC programme, a neonate with severe bacterial infection should be treated with seven days of gentamycin injections and dispersible amoxicillin tablets. A neonate with a local bacterial infection should be treated with amoxicillin for five days. The CBNC programme also includes Tetracycline (TTC) eye ointment and chlorhexidine for cord care as part of immediate newborn care.

In this study, gentamycin was available in 64% of the facilities and over 80% had amoxicillin suspension and tablets and TTC eye ointment.

Figure 4.8 shows the availability of four of the drugs associated with the CBNC programme (gentamycin, amoxicillin tablets, amoxicillin suspension, and TTC). Forty-six percent of facilities had all four drugs and 31% had three out of the four drugs available on the day of the survey.

4.1.3 Facility services routinely offered and services utilised in the last three months

Staff members were asked about services provided routinely at the health centre in the last three months. Approximately 90% of facilities provided skilled delivery, immediate newborn care, postpartum checks for mothers (provided in the first six weeks after birth), and postnatal checks for newborns (provided in the first 28 days after birth). Around 80% provided resuscitation and management of hypothermia. Seventy percent provided kangaroo mother care (KMC) services. It is likely that this estimate includes skin-to-skin care. A little less than 50% of facilities provided management of pre-term or low birth weight neonates and treatment of neonates with very severe disease. Table 4.3 shows the distribution of routine services by region.

Figure 4.9a-d shows the gaps between expected and recorded service utilisation for each of the four regions. These are based on respective PHCU performance targets and service records maintained at the health centre, which includes information on the whole PHCU (health centre and satellite health posts). Across all four regions, of the expected pregnancies, 42% were unidentified by the PHCU and two-thirds did not receive any ANC. Of the expected deliveries, over 75% did not take place at a health facility. The service utilisation gap was largest for optimal PNC visits among expected births across all four regions.

“Approximately 90% of facilities provided skilled delivery, immediate newborn care, postpartum checks for mothers (provided in the first six weeks after birth), and postnatal checks for newborns (provided in the first 28 days after birth).”

Table 4.2 Maternal and newborn health related functional equipment, supplies and medicine available at the health centre on the day of the survey, by region

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of facilities	**50**	**82**	**58**	**16**
Equipment				
Blood pressure cuff	45 (90)	77 (94)	56 (97)	15 (94)
Examination couch	49 (98)	73 (89)	58 (100)	16 (100)
Privacy curtain	19 (38)	30 (37)	42 (72)	14 (88)
Clinical thermometer	41 (82)	50 (61)	50 (86)	16 (100)
Stethoscope	50 (100)	79 (96)	58 (100)	16 (100)
Clock	28 (56)	39 (48)	45 (78)	12 (75)
Washable mackintosh	19 (38)	27 (33)	33 (57)	7 (44)
Ambu bag	47 (94)	62 (76)	51 (88)	15 (94)
Infant scale	47 (94)	74 (90)	58 (100)	16 (100)
Tape measure	41 (82)	71 (87)	51 (88)	15 (94)
Suction bulb	42 (84)	58 (72)	48 (83)	15 (94)
Warmer for newborn care	14 (28)	17 (21)	16 (28)	5 (31.3)
Supplies				
Surgical gloves	50 (100)	80 (98)	54 (93)	16 (100)
Syringes with needles	48 (96)	80 (98)	56 (97)	16 (100)
Water for injection	40 (80)	59 (72)	52 (90)	16 (100)
IV cannula	49 (98)	76 (93)	53 (91)	16 (100)
Pregnancy test kit	48 (96)	65 (79)	51 (88)	15 (94)
Proteinuria test kit	30 (60)	54 (66)	28 (48)	14 (88)
HIV test kit	49 (98)	72 (88)	57 (98)	16 (100)
Syphilis test kit	21 (42)	36 (44)	20 (35)	11 (69)
Blood haemoglobin test kit	17 (34)	41 (50)	27 (47)	12 (75)
Blood glucose test kit	15 (30)	17 (21)	21 (36)	10 (63)
Medicine/vaccines				
Iron	45 (90)	60 (73)	56 (97)	16 (100)
Folate	44 (88)	31 (38)	40 (69)	9 (56)
Gentamycin	32 (64)	50 (61)	40 (69)	9 (56)
Amoxicillin suspension (125mg/5ml)	36 (72)	66 (81)	50 (86)	15 (94)
Amoxicillin tab (250mg)	42 (84)	66 (81)	46 (79)	15 (94)
TTC eye ointment	49 (98)	62 (76)	49 (85)	16 (100)
Vitamin K 1mg	24 (48)	43 (52)	22 (38)	9 (56)
Vitamin A 200,000 IU	28 (56)	33 (40)	34 (59)	2 (13)
Vitamin A 100,000 IU	36 (72)	49 (60)	42 (72)	14 (88)
BCG	44 (88)	66 (81)	52 (90)	16 (100)
Polio vaccine	45 (90)	68 (83)	49 (85)	15 (94)

Figure 4.8 CBNC readiness of health centres: availability of four CBNC essential drugs (amoxicillin tablets, amoxicillin suspension, gentamycin and TTC) in any combination (N=203)

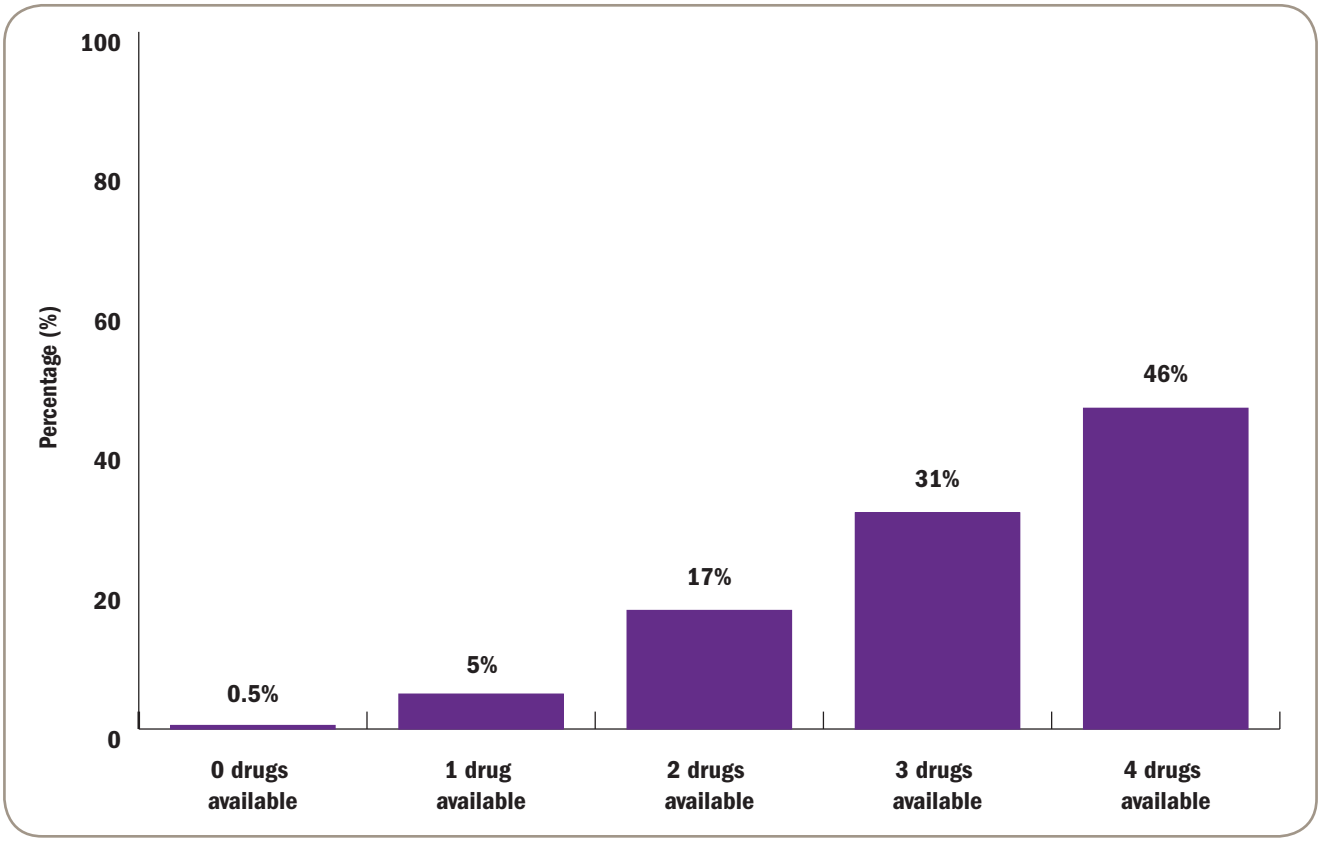


Table 4.3 Maternal and newborn health services routinely provided at health centres, by region

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of facilities	**50**	**82**	**58**	**16**
Services offered				
Skilled delivery with clean gloves	46 (92)	77 (94)	44 (76)	14 (88)
Immediate newborn care	49 (98)	74 (90)	50 (86)	15 (94)
Resuscitation of newborns	44 (88)	60 (73)	46 (79)	16 (100)
Management of hypothermia	48 (96)	57 (70)	42 (72)	16 (100)
Management of pre-term and/or low birth weight neonates	31 (62)	38 (46)	20 (35)	10 (63)
Management of neonatal very severe disease	21 (42)	39 (48)	28 (48)	9 (56)
Postpartum checks for mothers	50 (100)	75 (92)	54 (93)	16 (100)
Postnatal health checks for newborns	45 (90)	72 (88)	53 (91)	16 (100)
Kangaroo mother care	41 (82)	49 (60)	40 (69)	13 (81)

Figure 4.9a Service utilisation gap across the continuum of care in Amhara PHCUs

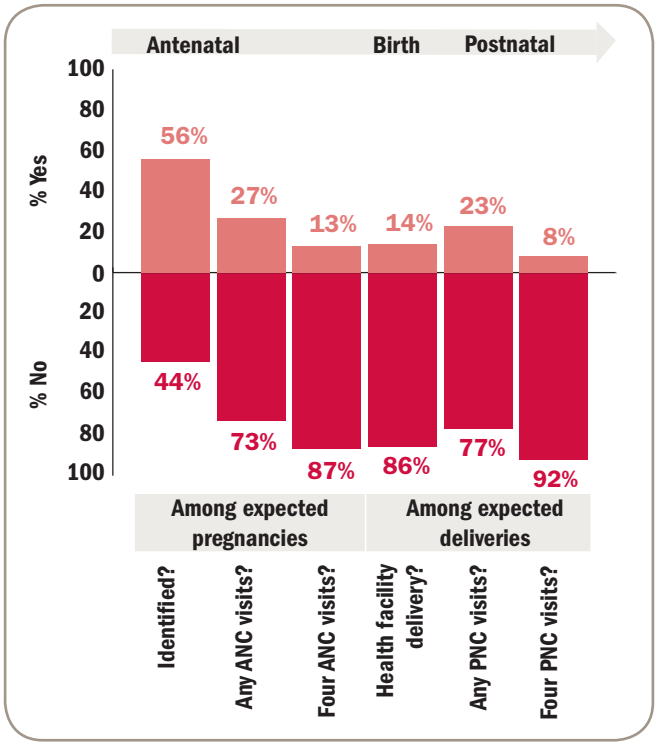


Figure 4.9b Service utilisation gap across the continuum of care in Oromia PHCUs

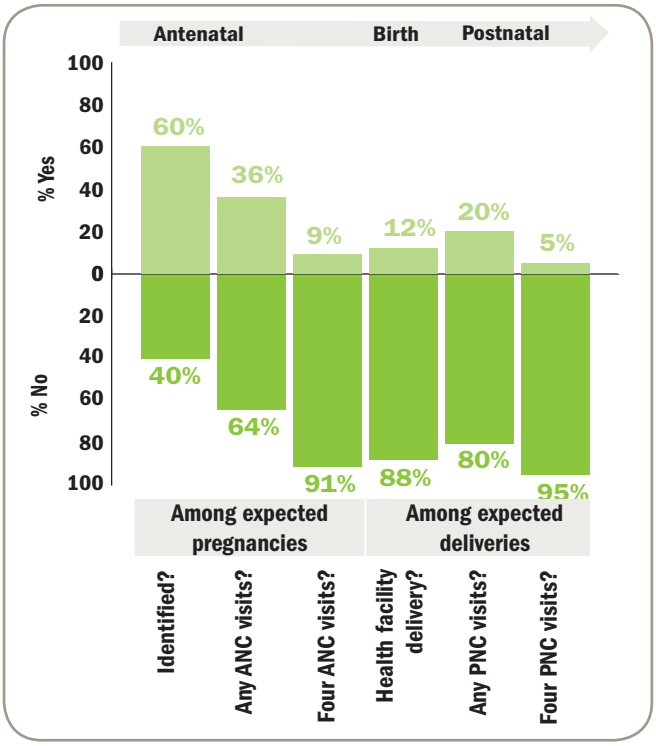


Figure 4.9c Service utilisation gap across the continuum of care in SNNP PHCUs

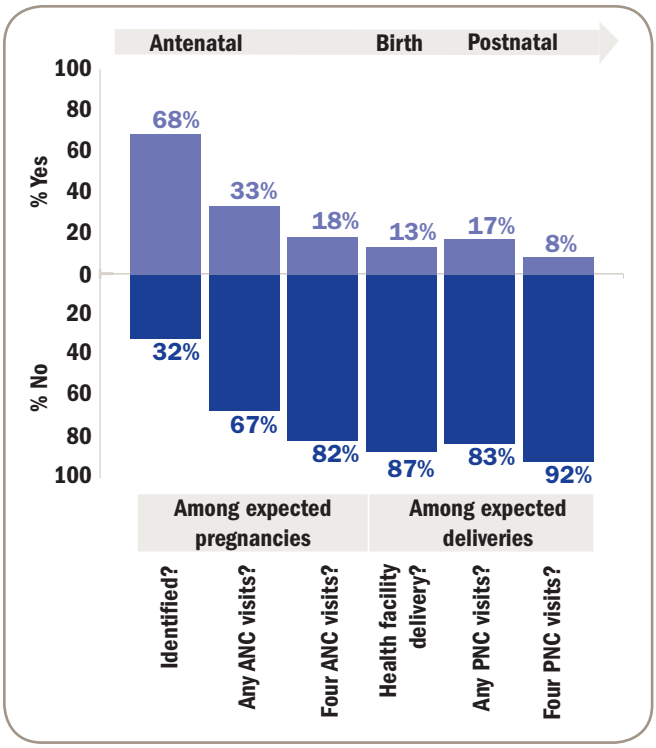
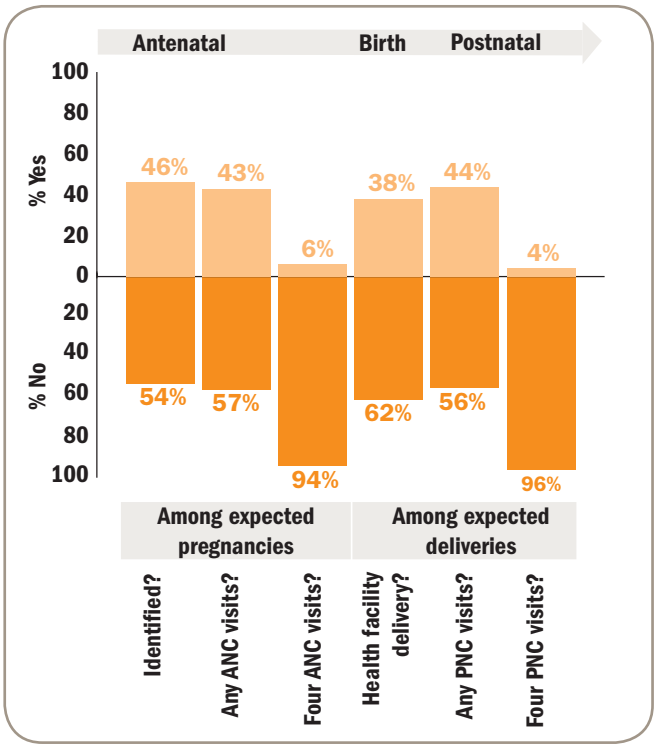


Figure 4.9d Service utilisation gap across the continuum of care in Tigray PHCUs



4.2 Health Post

A total of 206 health posts in the catchment areas surveyed were included in this study. At each health post, the more senior HEW who had worked longer at the health post was interviewed. Information on the target population, characteristics of the health facility, equipment, supplies and medicines available was collected. A record review was conducted to assess services that were routinely offered at the health post in the three months preceding the survey and their level of utilisation.

4.2.1 Recorded target population served by the health post and description of the health post

A health post is intended to serve approximately 5,000 people. In this study, on average, health post catchment areas had a population of 4,450 people, 1,070 households and 975 women of reproductive age. Regional distribution of the target population is shown in figures 4.10-4.14.

With respect to facility description, 80% of health posts had toilets for clients while only 13% had piped water. Twenty percent were connected to electricity and a similar number had a functional steriliser and fridge. However, in Tigray over half the facilities had electricity, a steriliser and a fridge (Table 4.4).

Assessment of the availability of MNCH **job aids** and **administrative forms** showed that approximately 80% of health posts had family folders (a family-centred information collection tool for integrated health service delivery by HEWs) and a book for pregnant women and outcomes registration (which was not federally issued). Sixty-eight percent had any family health cards and young infant record forms. Around 90% had iCCM registration books and 65% had iCCM chart booklets. Health posts might not have had a chart booklet if the interviewed HEW had not been trained in iCCM, if a previously trained HEW had left the health post (attrition) or if the actual booklet was not available at the health post on the day of the survey. Forty-two percent of health posts had stock/bin cards and 33% had drug request and resupply forms. Less than one-third had supervision checklist forms and birth preparedness and complication forms. In general, fewer facilities in Amhara and Oromia had the necessary MNCH job aids and administrative forms. (Table 4.4)

“Assessment of the availability of MNCH job aids and administrative forms showed that approximately 80% of health posts had family folders and a book for pregnant women and outcomes registration.”

Table 4.4 Aspects of the structure and function of health posts, by region

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of facilities	**50**	**82**	**58**	**16**
Facility description				
Piped water	3 (6)	9 (11)	8 (14)	7(44)
Electricity supply	7 (14)	12 (15)	14 (24)	8 (50)
Functional steriliser	9 (18)	14 (17)	11(19)	8 (50)
Functional fridge	7 (14)	16 (20)	10 (18)	9 (56)
Patient toilet	37 (74)	64 (78)	51 (88)	14 (88)
MNCH job aids and administrative forms				
Family folder	31 (62)	64 (78)	50 (86)	16 (100)
Family health cards	31 (62)	49 (60)	47 (81)	14 (88)
Vaccination cards	39 (78)	61 (74)	48 (83)	15 (94)
Stock card/bin card	27 (54)	24 (29)	27 (47)	10 (63)
Request and re-supply form	21 (42)	24 (29)	15 (26)	8 (50)
Birth preparedness and complication form	7 (14)	21 (26)	19 (33)	12 (75)
Supervision checklist form	14 (28)	16 (20)	17 (29)	12 (75)
Young Infant Record Form	29 (58)	58 (71)	40 (69)	13 (81)
iCCM registration book 0-2 months	42 (84)	71 (87)	55 (95)	14 (88)
iCCM registration book 2 -59 months	43 (86)	74 (90)	55 (95)	15 (94)
Chart booklet	29 (58)	45 (55)	47 (81)	14 (88)
Pregnant woman and outcome registration book	39 (78)	62 (76)	52 (90)	14 (88)

Figure 4.10 Average health post catchment population, by region (N=202)

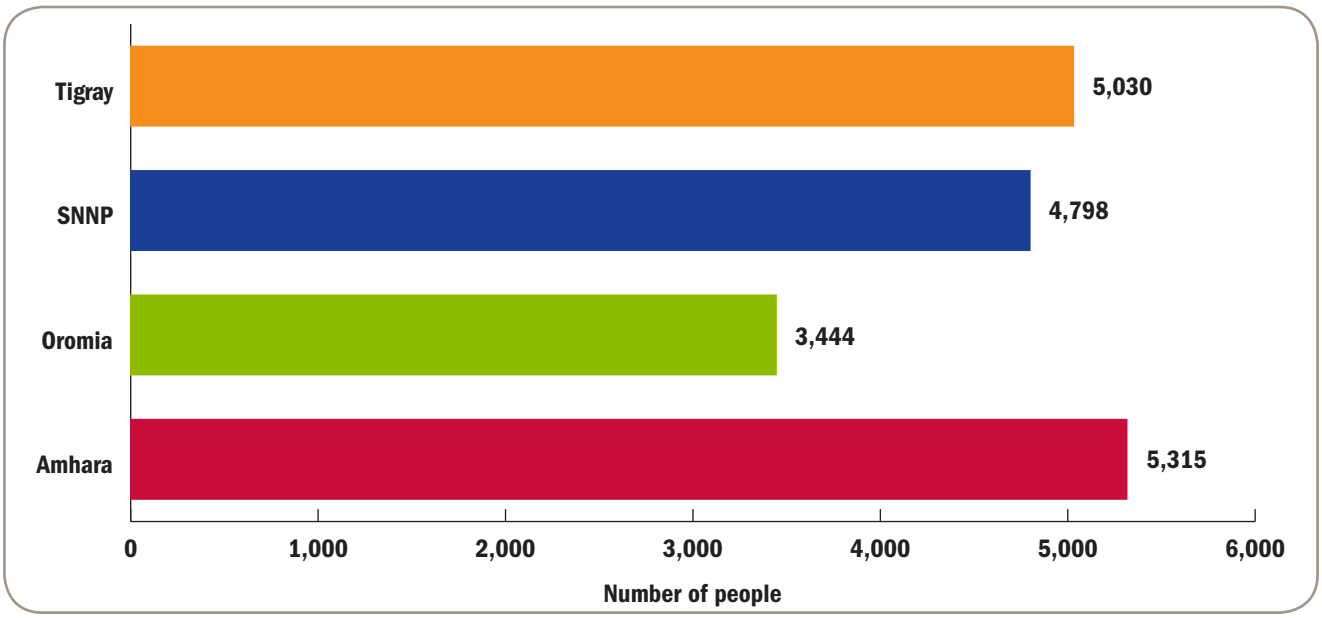


Figure 4.11 Average number of households in a health post catchment area, by region (N=200)

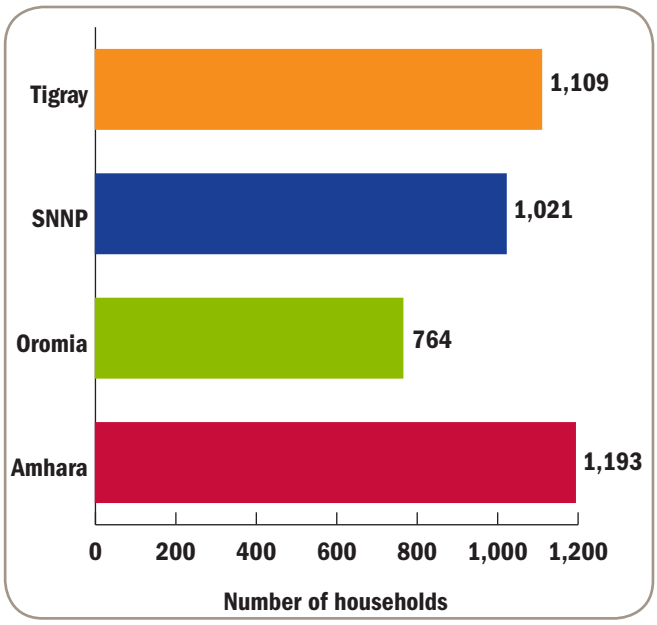


Figure 4.12 Average family size per household in a health post catchment area, by region (N=198)

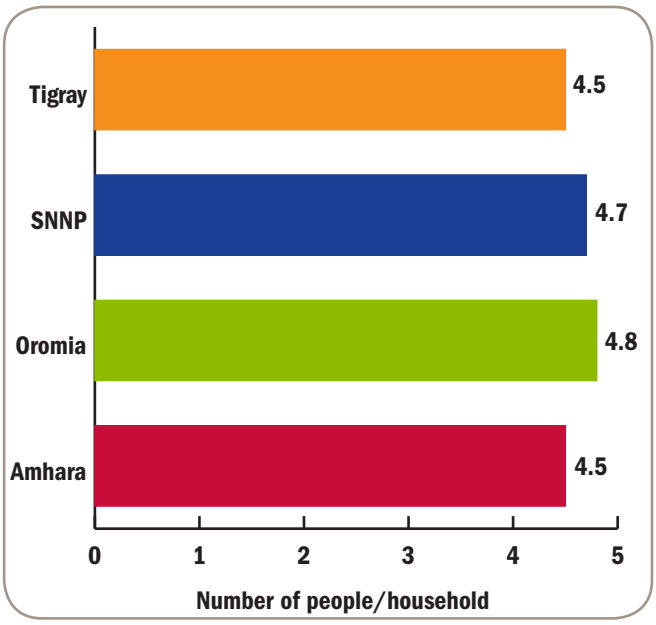


Figure 4.13 Average number of women of reproductive age in a health post catchment area, by region (N=152)

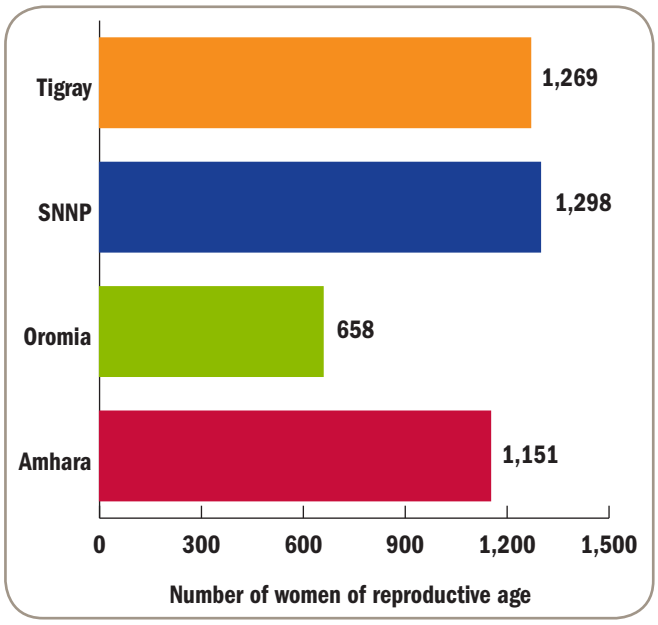
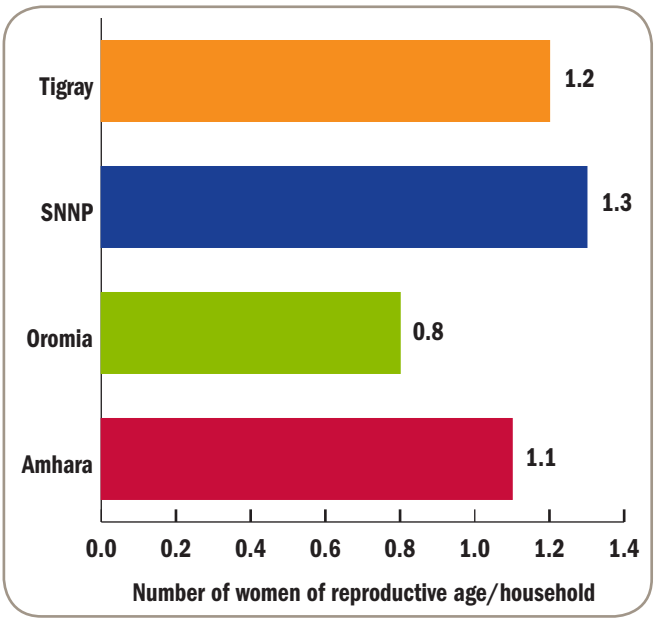


Figure 4.14 Average number of women of reproductive age per household in a health post catchment area, by region (N= 151)



4.2.2 Equipment, supplies and medicine

As shown in Table 4.5, this survey assessed the availability of equipment, supplies and medicine necessary to provide basic MNH care services at the health post. Around 60% of health posts had blood pressure cuffs and examination couches, while only 35% had curtains for privacy. Sixty-eight percent had a digital thermometer and 64% had a stethoscope and infant scale. A weighing sling was available in 81% of health posts and 35% had a clock. With respect to supplies, clean gloves were available in 64% of the health posts and 80% had syringes with needles.

As part of the CBNC programme, a sick neonate identified by a HEW is to be given a pre-referral amoxicillin tablet and gentamycin injection and is then referred urgently to a hospital or the health centre. When a referral is not possible, a HEW treats a sick neonate with amoxicillin and gentamycin for seven days.

Thirteen percent of health posts had amoxicillin tablets which are used by HEWs for the management of malnutrition. A little over one-third of health posts had TTC eye ointment.

4.2.3 Facility services routinely offered and services utilised in the last three months

HEWs were asked about services provided routinely at the health post in the last three months. In this period, 43% of health posts reported having consistently offered safe and clean delivery with gloves, and a similar number provided management of hypothermia. Sixty percent provided immediate newborn care. Postpartum health checks for mothers and postnatal health checks for newborns were available in 75% of the health posts. A little over 15% of health posts had provided resuscitation services and management of pre-term or low birth weight for neonates. Eleven percent of health posts had provided management for very severe neonatal diseases (which, at the time of the survey, entailed referral of sick newborns to the health centre for treatment). Distribution of services provided by region is shown in Table 4.6.

Figure 4.15a-d shows the gaps between expected and recorded service utilisation at health post level. The overall average for the four regions showed that among the expected pregnancies, over half were not identified by the health system, and three-quarters did not receive any ANC. Similar to health centres, the service utilisation gap was high for optimal PNC (among expected deliveries).

Figure 4.15e shows the gap in service utilisation for four ANC visits (optimal) among women receiving any ANC, while Figure 4.15f shows the gap in service utilisation for four PNC visits (optimal) among women receiving any PNC. Information for both the PHCUs as a whole and health posts are shown. With respect to completion of optimal ANC visits among ANC recipients, health posts did not perform as well as the PHCU as a whole. Conversely, with respect to completion of optimal PNC visits among PNC recipients, health posts had less of a service utilisation gap compared with the PHCU as a whole. Overall, at the health post level, completion of optimal PNC visits was higher than completion of optimal ANC visits.

“

43% of health posts reported having consistently offered safe and clean delivery with gloves, and a similar number provided management of hypothermia.”

“

60% of health posts provided immediate newborn care.”

Table 4.5 Maternal and Newborn health related equipment, supplies and medicine available at the health post on the day of the survey, by region

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of facilities	**50**	**82**	**58**	**16**
Equipment				
Blood pressure cuff	28 (56)	51 (62)	40 (69)	14 (88)
Examination couch	33 (66)	36 (44)	39 (67)	15 (94)
Privacy curtain	20 (40)	19 (23)	24 (41)	11 (69)
Clinical Thermometer, digital	39 (78)	47 (57)	39 (67)	14 (88)
Stethoscope	33 (66)	53 (65)	34 (59)	12 (75)
Clock	19 (38)	13 (16)	33 (57)	9 (56)
Washable mackintosh	16 (32)	11 (13)	17 (29)	3 (19)
Infant scale	27 (54)	54 (66)	36 (62)	15 (94)
Weighing sling	45 (90)	59 (72)	48 (83)	15 (94)
Tape measure	17 (34)	34 (42)	30 (52)	13 (81)
Clean gloves	34 (68)	39 (48)	44 (76)	16 (100)
Syringes with needles	43 (86)	58 (71)	48 (83)	16 (100)
Medicine/vaccines				
Iron	39 (78)	45 (5)	53 (91)	16 (100)
Folate	17 (34)	12 (15)	14 (24)	11 (69)
Amoxicillin tab	8 (16)	4 (5)	7 (12)	7 (44)
TTC eye ointment	32 (64)	8 (10)	26 (45)	11 (69)
Vitamin A 200,000 IU	17 (34)	11 (13)	29 (50)	2 (13)
Vitamin A 100,000 IU	23 (46)	32 (39)	31 (53)	12 (75)
BCG	12 (24)	14 (17)	15 (26)	9 (56)
Polio vaccine	13 (26)	18 (22)	15 (26)	8 (50)

Table 4.6 Maternal and newborn health services routinely provided at health posts in the last three months, by region

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of facilities	**50**	**82**	**58**	**16**
Services offered				
Safe and clean delivery	17 (34)	29 (35)	32 (55)	11 (69)
Immediate newborn care	27 (54)	45 (55)	36 (62)	14 (88)
Management of hypothermia for newborns	26 (52)	24 (29)	27 (47)	10 (63)
Management of pre-term and/or low birth weight neonates	6 (12)	10 (12)	13 (22)	4 (25)
Management of very severe neonatal disease	3 (6)	7 (9)	10 (17)	3 (19)
Postpartum checks for mothers	34 (68)	63 (77)	45 (78)	14 (88)
Postnatal health checks for newborns	36 (72)	58 (71)	48 (83)	14 (88)

Figure 4.15a Service utilisation gap across the continuum of care in Amhara health posts

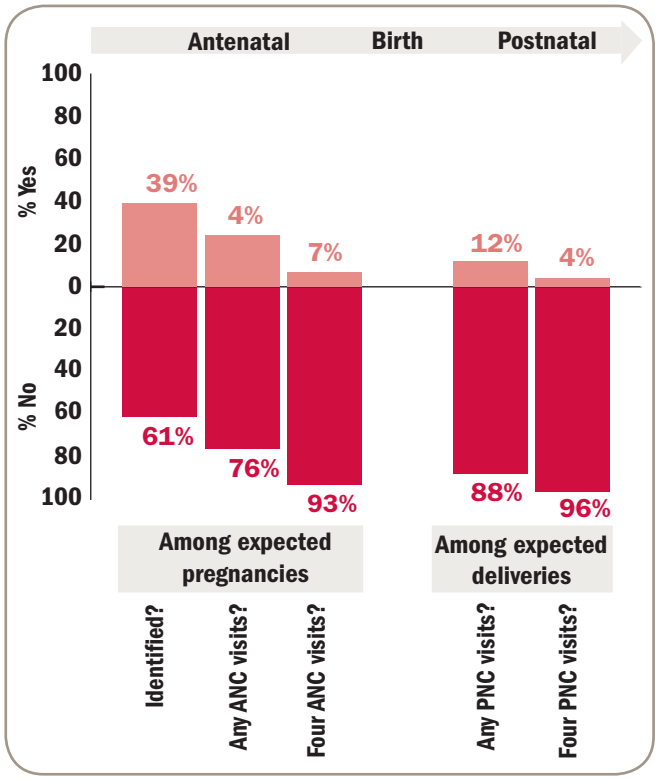


Figure 4.15b Service utilisation gap across the continuum of care in Oromia health posts

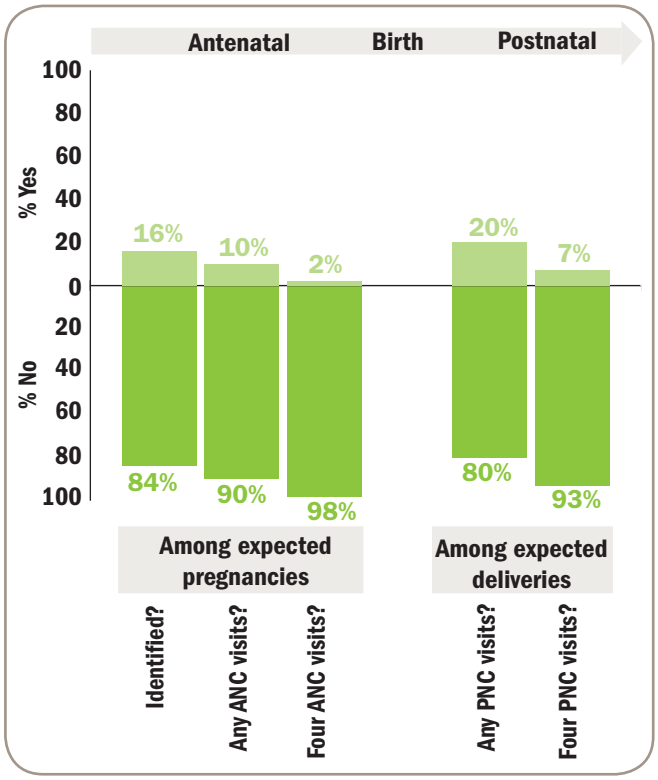


Figure 4.15c Service utilisation gap across the continuum of care in SNNP health posts

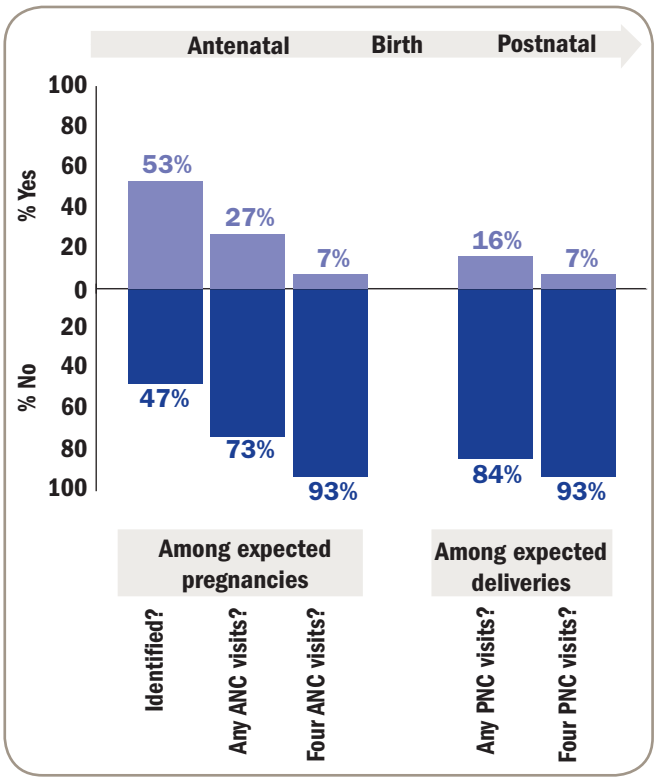


Figure 4.15d Service utilisation gap across the continuum of care in Tigray health posts

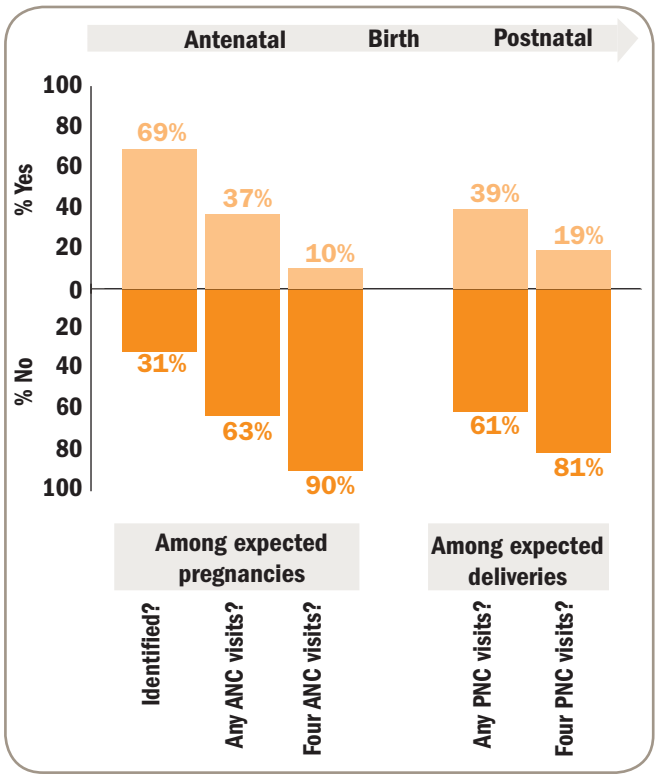


Figure 4.15e Service utilisation gap in the recommend ANC visits among those receiving any ANC in health posts and PHCUs, by region

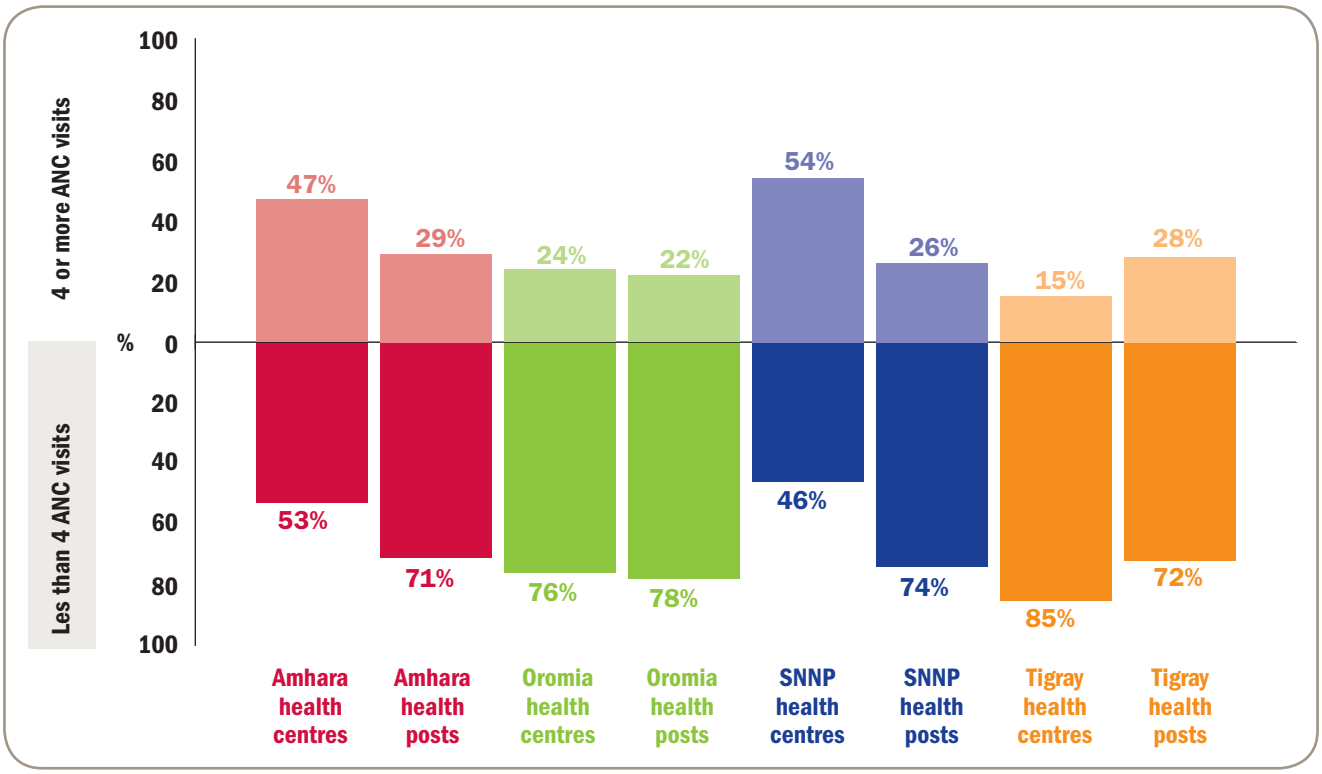
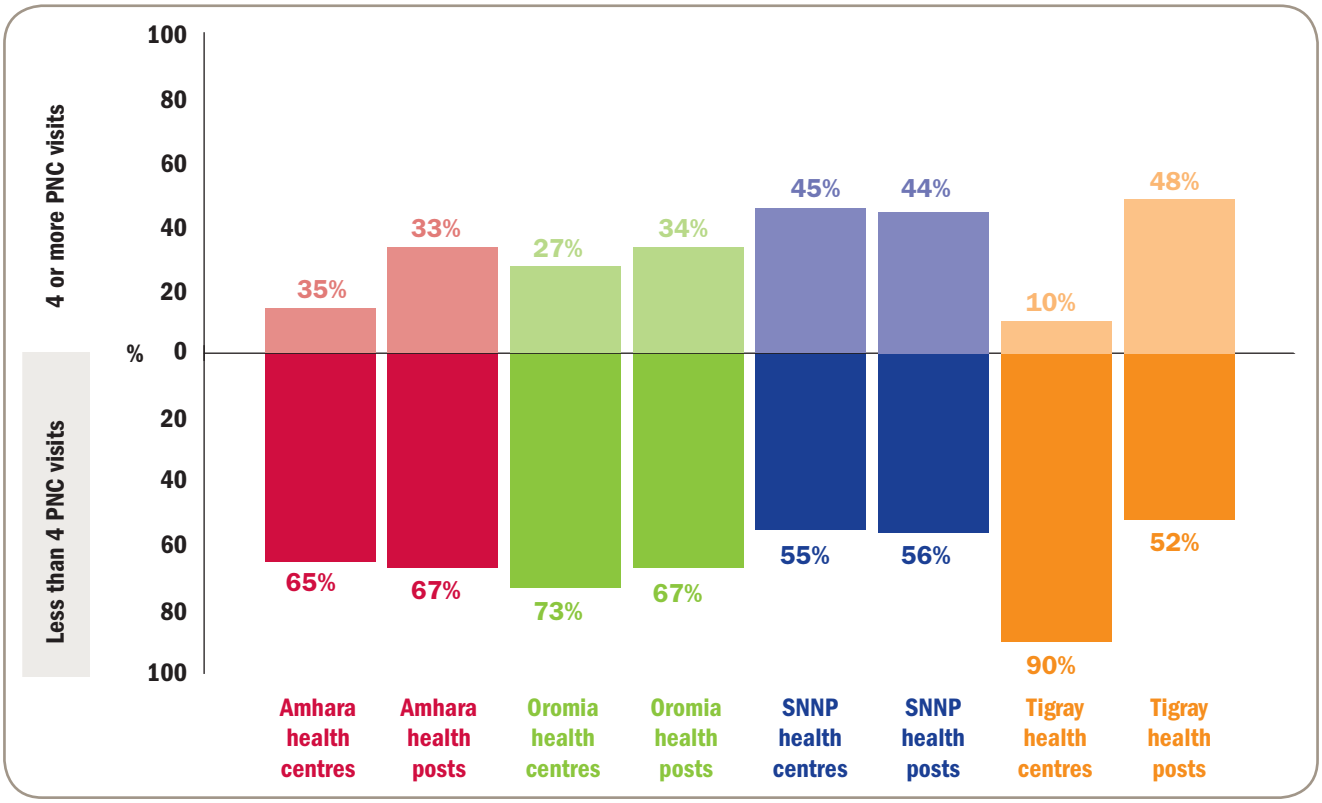


Figure 4.15f Service utilisation gap in the recommend PNC visits among those receiving any PNC in health posts and PHCUs, by region



4.3 Health Extension Worker

In this section we present the results from the 206 HEWs who were interviewed as part of the survey. The results include background information on the HEWs (age, education, employment, and place of residence), their training in the last twelve months, their knowledge, and their supervision and linkage with the HDA in the preceding three months.

4.3.1 Background information and professional history

Across all four regions, on average HEWs were 26 years of age, had completed 11 years of education and had been employed as a HEW for five years. Based on the information provided by the HEWs' interviews, 87% reported living in the kebele where they served; where, on average, they had worked for the past four years. The HEWs' demographics by region are shown in Table 4.7. The HEWs' age and years of education were similar across the four regions.

4.3.2 Training received across the continuum of care

The CBNC programme relies on HEW contact with pregnant women, either through home visits or ANC sessions, to promote early care seeking behaviour, facility birth and effective newborn practices, as well as to educate mothers on the early identification of danger signs across the continuum of care. Once a mother has delivered, HEWs are to provide PNC visits at home to support appropriate care for the newborn (e.g. exclusive breastfeeding) and also screen the newborn for danger signs and refer or treat those suspected of having a serious bacterial infection.

Within the context of CBNC, HEWs were asked about the training they had received on different thematic areas across the continuum of care in the last twelve months, either through one or more trainings.(Table 4.8) For the ANC period, 36% were trained in providing family planning (FP) services and a little over a quarter on providing ANC and counselling on prevention of mother to child transmission of HIV (PMTCT) services. (Figure 4.16)

For the childbirth period, 20% were trained on attending normal deliveries and 28% on managing asphyxia. As misoprostol was not scaled-up during the time this survey was conducted, only 5% of HEWs reported having received training on misoprostol use. (Figure 4.17)

A little over one-third of HEWs had received training on providing PPC and PNC. (Figure 4.18) Twenty-eight percent of HEWs had recently been trained to recognise signs of severe newborn illness.

HEWs were also asked if they had attended integrated refresher training on providing services to mothers and newborns of which one-third said 'yes'. Fifty-two percent also said that they had received iCCM training in the last 12 months.

Table 4.7 HEWs' background information and professional history, by region

		Amhara	Oromia	SNNP	Tigray
Age in years	Mean (SD)	27 (3)	25 (3)	27 (4)	27 (3)
Years of education	Mean (SD)	11 (1)	11 (1)	11 (1)	11 (1)
Employment duration in years	Mean (SD)	6 (2)	5 (2)	6 (2)	4 (3)
Employment duration locally in years	Mean (SD)	4 (3)	4 (3)	5 (2)	2 (2)
Local residence	N (%)	46 (92)	67 (82)	51 (88)	16 (100)

Photo: Health Extension Worker, Ethiopia © Dr Bilal Avan

Table 4.8 HEWs' training received across the continuum of care in the last 12 months, by region

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of HEWs	**50**	**82**	**58**	**16**
ANC period				
Family planning services	25 (50)	22 (27)	22 (38)	6 (38)
ANC services	14 (28)	25 (31)	13 (22)	4 (25)
Estimated due date assessment	11 (22)	23 (28)	12 (21)	4 (25)
Birth preparedness	22 (44)	44 (54)	15 (26)	7 (44)
PMTCT counselling	14 (28)	13 (16)	22 (38)	6 (38)
Childbirth period				
Attending normal deliveries	3 (6)	25 (31)	11 (19)	1 (6)
Misoprostol	3 (6)	5 (6)	2 (3)	1 (6)
Managing asphyxia	11 (22)	36 (44)	5 (9)	6 (38)
Postnatal period				
Postpartum care (PPC) for the mother	19 (38)	32 (39)	16 (28)	5 (31)
Postnatal care for the newborn	15 (30)	34 (42)	14 (24)	7 (44)
Local bacterial infection	12 (24)	30 (37)	5 (9)	5 (31)
Neonatal jaundice	12 (24)	21 (26)	7 (12)	5 (31)
Neonatal diarrhoea	21 (42)	37 (45)	10 (17)	7 (44)
Neonatal underweight	16 (32)	42 (51)	10 (17)	10 (63)
Severe newborn infection				
Identifying signs of severe newborn illness	11 (22)	27 (33)	12 (21)	7 (44)
Integrated MNH training	18 (36)	33 (40)	12 (21)	4 (25)
iCCM training	29 (58)	49 (60)	19 (33)	10 (63)

Figure 4.16 Training received by HEWs in the previous twelve months: ANC period (N=206)

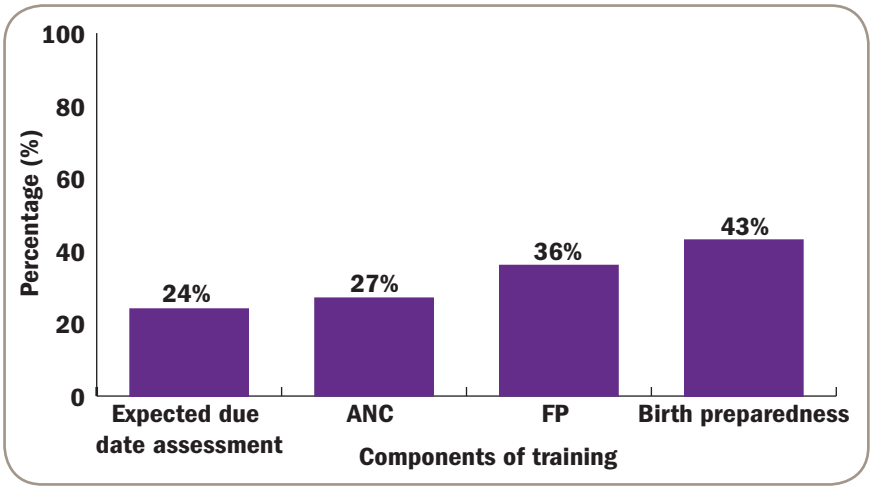


Figure 4.17 Training received by HEWs in the previous twelve months: childbirth period (N=206)

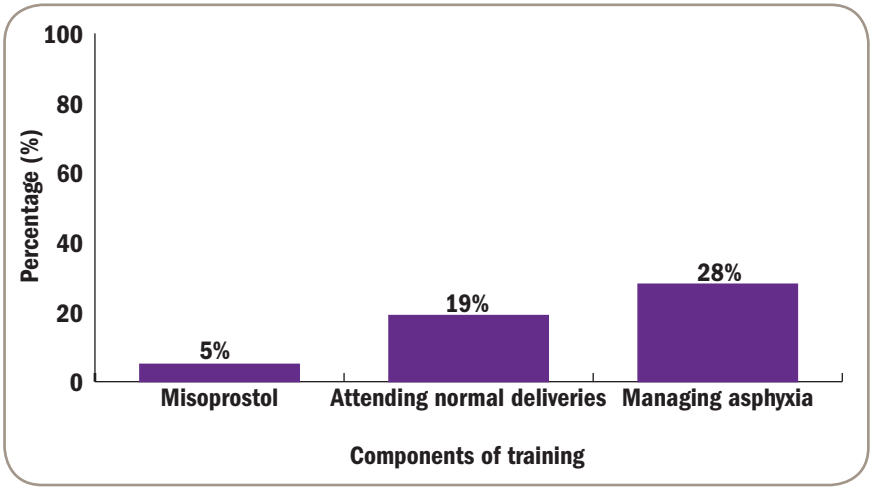
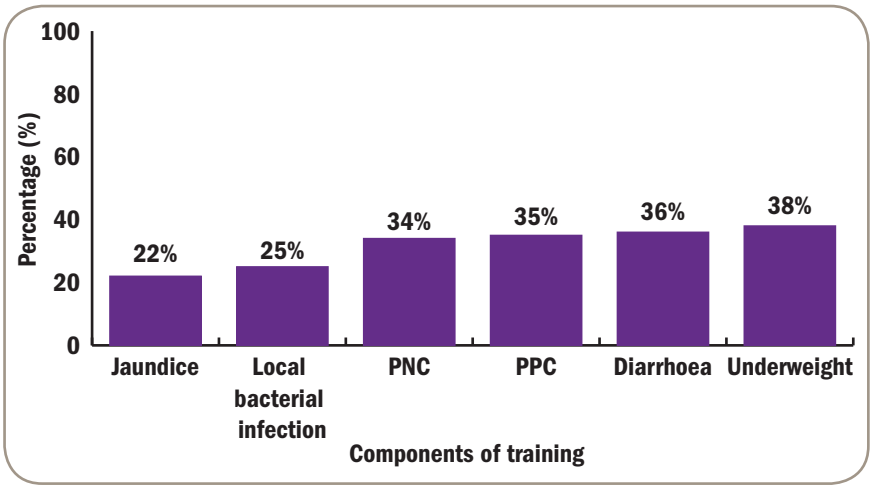


Figure 4.18 Training received by HEWs in the previous twelve months: postnatal period (N=206)



4.3.3 HEW knowledge

HEWs were asked about their unprompted knowledge on elements of ANC, childbirth care and care in the postnatal period as well as providing general care to newborns and management of newborns with illnesses.

For the ANC period, Figure 4.19 shows that over 60% had unprompted knowledge of the five key components of focused ANC (minimum of four consultations, first consultation at health centre, birth plan, institutional delivery and nutrition education). Less than 50% had unprompted knowledge about promoting awareness of danger signs, breastfeeding and family planning.

Table 4.9a shows HEWs' knowledge of the key components of the first ANC visit for each region. Across all four regions, the majority of HEWs cited measuring blood pressure and weight (78% and 72%, respectively). Around 60% had unprompted knowledge of assessing pregnancy related danger signs and nutrition, and providing iron, folate and Tetanus toxoid (TT) vaccines. Approximately 45% of HEWs cited encouraging mothers to visit a health centre during the first trimester. Promotion of birth preparedness and complication readiness, and linking pregnant mothers with their respective HDA network leaders was cited by one-third of HEWs. As part of subsequent ANC visits, over 80% of HEWs cited monitoring weight gain, and over 60% said promotion of iron and folate use, as well as monitoring for pregnancy-related danger signs.

With respect to knowledge of pregnancy-related danger signs, the majority of HEWs named vaginal bleeding and headache, dizziness or blurred vision (72% and 75%, respectively). Around 60% had knowledge of fever and convulsion/unconsciousness as danger signs. Severe abdominal pain, offensive discharge from the birth canal and swollen hands and face were cited by 55% of HEWs.

For the childbirth period, HEWs' knowledge around monitoring progress in labour was assessed. Around half the HEWs had unprompted knowledge of monitoring maternal blood pressure and foetal heartbeat (54% and 50%, respectively). Less than half named monitoring maternal temperature, pulse, degree of moulding and dilation of the cervix. Around one-third cited uterine contraction and the colour of the amniotic fluid.

With respect to knowledge of danger signs in the postnatal period, almost all the HEWs cited vaginal bleeding (96%) and 68% also named severe headache. Around 60% cited severe abdominal pain and fever. Only one-quarter had unprompted knowledge of severe calf pain.

On components of a postpartum visit, 71% of HEWs mentioned nutrition education and 65% mentioned checking for danger signs. Measurement of body temperature and education on family planning were cited by around half the HEWs (52% and 53%, respectively), and 45% knew they should provide contraceptives. Provision of TT vaccination and vitamin A were mentioned by 40% of HEWs, and 38% said they should encourage the use of iron tablets. As part of subsequent PNC visits, 74% of HEWs mentioned educating mothers on nutrition. Around 70% cited the need for assessing breastfeeding and educating on family planning. Unprompted HEW knowledge around maternal care during pregnancy, delivery and the postpartum period by region is shown in Table 4.9a.

With respect to immediate newborn care, the most frequently cited aspects were keeping the baby dry and wrapped (84%) and initiating breastfeeding (81%).

With respect to immediate newborn care, the most frequently cited aspects were keeping the baby dry and wrapped (84%) and initiating breastfeeding (81%). Although 73% named tying and cutting the cord, only 46% cited delay of cord clamping for three minutes. Around 65% mentioned delivering the baby onto the mother's abdomen and assessing breathing. Skin to skin contact, weighing the baby and applying TTC eye ointment were cited by around 55% of HEWs.

As part of CBNC it is expected that mothers and their newborns are provided with comprehensive PPC (day 1, 3 and 7, and week 6) and PNC (day 1, 3 and 7). In this study, one-third of HEWs cited a PNC visit on the first day and one-quarter mentioned visits on the second and third days.

As part of the first PNC visit, the majority of HEWs cited promoting exclusive breastfeeding as a key component (79%) and around 60% referenced measuring weight and temperature. A little less than half cited

the application of TTC eye ointment, encouraging skin to skin contact, washing hands and delaying bathing. Fewer than a quarter mentioned providing, and educating on, cord care.

As part of the subsequent PNC visits, 82% cited assessing breastfeeding and 59% said educating on appropriate cord care. Checking for newborn danger signs and ensuring that newborns are kept warm was named by 55% and 52% of HEWs respectively. Fewer than half cited the need to check the weight of newborns. The results of HEWs' unprompted knowledge on newborn general care by region are shown in Table 4.9b.

With respect to newborns needing special care, HEWs' unprompted knowledge by region is shown in Table 4.9c. Forty percent of HEWs cited breathing poorly as a sign of asphyxia, and facilitating breathing through an Ambu bag was the most frequently cited means of managing asphyxia. A little over half cited positioning the newborn baby on its back and clearing airways with gauze. Forty-three percent said to refer to a higher facility, while fewer than 15% mentioned the need for providing follow up visits.

For care related to newborns weighing less than 1.5 kg, over three-quarters of HEWs said these babies should be referred urgently to a hospital. Half of the HEWs cited breastfeeding with expressed milk and monitoring the baby's ability to breastfeed, while less than half listed the need to keep the newborn warm and close to its mother. For newborns between 1.5-2.5 kg, or 32-37 weeks, 73% of HEWs said educating on optimal breastfeeding and 63% said monitoring the baby's ability to breastfeed. A little over half cited the need to ensure that baby is warm, while 30% mentioned monitoring the baby for 24 hours.

Thirty-five percent cited breastfeeding more frequently as a component of local bacterial infection management. Only 15% said to treat with amoxicillin for five days. For severe jaundice, 60% of HEWs said they should refer urgently to a higher facility and 38% said to breastfeed with increased frequency. Fewer than 20% mentioned covering the baby and keeping it close to the mother's body.

Seventy percent of HEWs had unprompted knowledge of providing milk and breastfeeding more frequently for management of moderate dehydration. Thirty-six percent said to provide zinc for 10 days and a little over a quarter mentioned providing a follow up visit in two days. For severe dehydration, 81% said they would refer urgently to a higher facility and 74% said to provide oral rehydration solution (ORS) on the way to the facility. Sixty-three percent mentioned breastfeeding more frequently and 36% said to advise the mother to keep the newborn warm.

The CBNC programme aims to have HEWs give a pre-referral amoxicillin and gentamycin dose to neonates classified as having very severe disease (sepsis) and then refer them urgently to hospital or health centre. When referral is not possible, HEWs are to treat the neonate with amoxicillin dispersible tablets and gentamycin injection for seven days. In this survey, when asked about management of severe newborn illness, the majority of HEWs (85%) said to refer to a higher facility, which is the management specification prior to the implementation of CBNC. A little over half of HEWs said to continue breastfeeding; less than a quarter mentioned keeping the newborn's airways open.

“For care related to newborns weighing less than 1.5kg, over three-quarters of HEWs said these babies should be referred urgently to a hospital. Half of the HEWs cited breastfeeding with expressed milk and monitoring the baby's ability to breastfeed, while less than half listed the need to keep the newborn warm and close to its mother.”

Photo: Health Extension Worker job aids © Dr Neil Spicer

Figure 4.19 HEWs' unprompted knowledge of key focused ANC components (N=206)

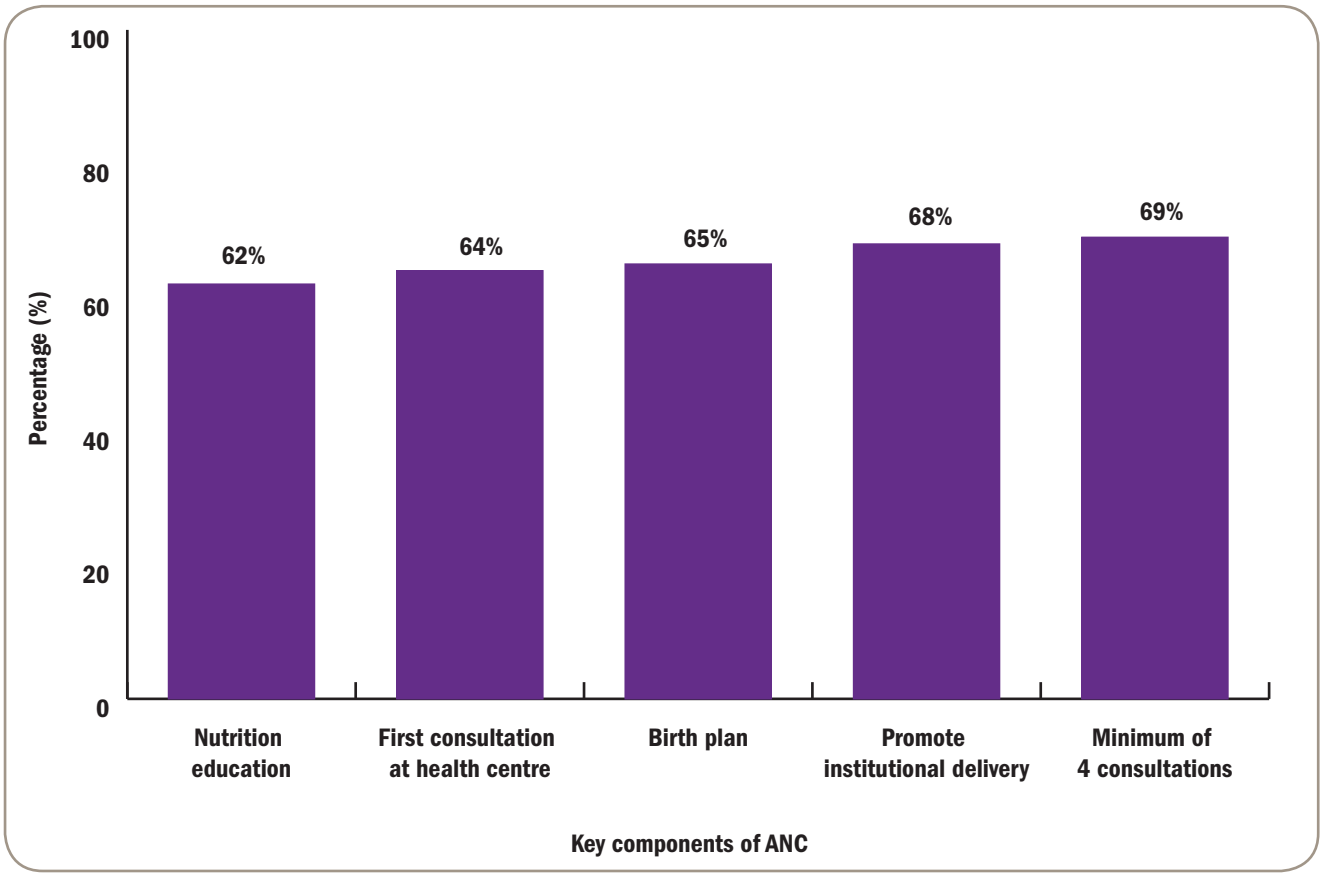


Table 4.9a HEWs' unprompted knowledge of health provision across the continuum of care, by region: maternal

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of HEWs	**50**	**82**	**58**	**16**
Key components of focused ANC				
Minimum of 4 consultations	29 (58)	62 (76)	35 (60)	16 (100)
First consultation at health centre	32 (64)	49 (60)	39 (67)	11 (69)
Birth plan	28 (56)	57 (70)	39 (67)	9 (56)
Institutional delivery	40 (80)	49 (60)	39 (67)	13 (81)
Prevent illness and promote health	32 (64)	46 (56)	35 (60)	8 (50)
Illnesses management	21 (42)	48 (59)	25 (43)	10 (63)
Danger signs	27 (54)	40 (49)	29 (50)	6 (38)
Breastfeeding	18 (36)	30 (37)	31 (53)	3 (19)
Family planning	17 (34)	32 (39)	26 (45)	4 (25)
Nutrition	32 (64)	51 (62)	34 (59)	11 (69)
Key components of first ANC Assessment				
Estimating due date	34 (68)	59 (72)	37 (64)	7 (44)
Danger signs	27 (54)	46 (56)	37 (64)	10 (63)
Blood pressure	38 (76)	67 (82)	42 (72)	12 (75)
Weight	36 (72)	58 (71)	42 (72)	12 (75)
Inject TT vaccine	21 (42)	60 (73)	35 (60)	5 (31)
Provide iron and folate	28 (56)	50 (61)	36 (62)	11 (69)
Link mother with HDA network	10 (20)	26 (32)	24 (41)	2 (13)
Provide HEW number to family	7 (14)	23 (28)	18 (31)	4 (25)
Check history for past pregnancies with difficulties	17 (34)	36 (44)	25 (43)	9 (56)
Education on nutrition	27 (54)	59 (72)	26 (45)	7 (44)
Education on ITN use	10 (20)	23 (28)	18 (31)	2 (13)
Education on PMTCT	19 (38)	43 (52)	22 (38)	12 (75)
Education on HIV testing and STI	15 (30)	35 (43)	27 (47)	10 (63)
Education on birth preparedness and complication readiness	16 (32)	33 (40)	20 (35)	0 (0)
Encourage women to visit health centre during first trimester	22 (44)	37 (45)	22 (38)	5 (31)
Key components of 2nd ANC assessment and onwards				
Weight	40 (80)	63 (77)	49 (85)	15 (94)
Iron and folate use	32 (64)	54 (66)	49 (85)	9 (56)
Danger signs	34 (68)	48 (59)	36 (62)	10 (63)
Signs of high risk pregnancies				
Severe abdominal pain	30 (60)	47 (57)	31 (53)	7 (44)
Offensive discharge	15 (30)	54 (66)	39 (67)	10 (63)
Fever	26 (52)	47 (57)	41 (71)	11 (69)
Headache, dizziness or blurred vision	34 (68)	59 (72)	47 (81)	14 (88)
Convulsions or unconsciousness	29 (58)	52 (63)	42 (72)	8 (50)
Swollen hands and face	31 (62)	43 (52)	33 (57)	9 (56)
Vaginal bleeding	35 (70)	53 (65)	45 (78)	15 (94)

Table 4.9a HEWs' unprompted knowledge of health provision across the continuum of care, by region: maternal, continued

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of HEWs	**50**	**82**	**58**	**16**
Key components of childbirth period: monitoring labour				
Foetal heartbeat	19 (38)	49 (60)	30 (52)	6 (38)
Amniotic fluid colour	14 (28)	29 (35)	21 (36)	0 (0)
Degree of moulding	19 (38)	30 (37)	31 (53)	3 (19)
Cervix dilation	14 (28)	41 (50)	29 (50)	5 (31)
Descent of the head	13 (26)	35 (46)	21 (36)	8 (50)
Uterine contractions	11 (22)	28 (34)	22 (38)	6 (38)
Blood pressure	26 (52)	49 (60)	28 (48)	8 (50)
Temperature	15 (30)	38 (46)	24 (41)	8 (50)
Pulse	20 (40)	33 (40)	23 (40)	5 (31)
Postnatal period				
Danger signs during postpartum period				
Vaginal bleeding	48 (96)	79 (96)	53 (91)	16 (100)
Severe abdominal pain	25 (50)	51 (62)	41 (71)	6 (38)
Fever	22 (44)	48 (59)	39 (67)	11 (69)
Severe headache	28 (56)	57 (70)	44 (76)	10 (63)
Fits/spasms	25 (50)	31 (38)	32 (55)	7 (44)
Loss of consciousness	19 (38)	50 (61)	34 (59)	10 (63)
Foul smelling discharge	20 (40)	43 (52)	27 (47)	3 (19)
Severe calf pain	9 (18)	21 (26)	22 (38)	1 (6)
Key components of first PPC visit				
Check for postpartum danger signs	20 (40.0)	60 (73.2)	42 (72.4)	12 (75)
Body temperature	24 (48.0)	42 (51.2)	33 (56.9)	7 (44)
TT vaccine	18 (36.0)	30 (36.6)	27 (46.6)	8 (50)
Vitamin A	24 (48.0)	23 (28.0)	27 (46.6)	9 (56)
Provide contraception	17 (34.0)	40 (48.8)	35 (60.3)	1 (6)
Encourage iron tablet use	22 (44.0)	23 (28.0)	30 (51.7)	4 (25)
Education on nutrition	31 (62.0)	66 (81)	42 (72)	7 (44)
Education on family planning	19 (38.0)	46 (56)	39 (67)	4 (25)
Key components of subsequent PPC visit				
Check for danger signs	27 (54.0)	57 (70)	36 (62)	6 (38)
Check for/solve breastfeeding problems	32 (64.0)	58 (71)	45 (78)	10 (63)
Education on family planning	28 (56.0)	62 (76)	43 (74)	8 (50)
Education on nutrition	37 (74.0)	65 (79)	39 (67)	12 (75)
Education on hygiene	36 (72.0)	53 (65)	30 (52)	4 (25)

Table 4.9b HEWs' unprompted knowledge of health provision across the continuum of care, by region: newborn general care

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of HEWs	**50**	**82**	**58**	**16**
Newborn care				
Immediate newborn care				
Deliver baby onto mother's abdomen	27 (54)	54 (66)	42 (72)	12 (75)
Dry and wrap baby	45 (90)	66 (81)	47 (81)	15 (94)
Assess breathing	36 (72)	55 (67)	37 (64)	7 (44)
Delay cord clamping for three minutes	13 (26)	43 (52)	32 (55)	7 (44)
Tie and cut cord appropriately	37 (74)	63 (77)	38 (66)	12 (75)
Skin to skin contact	24 (48)	44 (54)	35 (60)	9 (56)
Initiate breastfeeding	44 (88)	67 (82)	40 (69)	15 (94)
Apply TTC eye ointment	25 (50)	41 (50)	35 (60)	12 (75)
Give vitamin K	16 (32)	21 (26)	13 (22)	6 (38)
Weigh baby	25 (50)	44 (54)	32 (55)	9 (56)
Preferable timing of postnatal visits				
1st PNC visit as 1 day	22 (44)	24 (29)	15 (26)	7 (44)
2nd PNC visit as 3 days	20 (40)	16 (20)	9 (16)	5 (31)
3rd PNC visit as 7 days	18 (36)	18 (22)	12 (21)	5 (31)
Main components of first PNC visit				
Advise washing hands before touching baby	19 (38)	43 (52)	34 (59)	3 (19)
Check for danger signs	17 (34)	41 (50)	34 (59)	8 (50)
Check for congenital abnormalities	10 (20)	38 (46)	16 (28)	2 (13)
Measure temperature	26 (52)	44 (54)	32 (55)	8 (50)
Measure weight	30 (60)	47 (57)	39 (67)	10 (63)
Apply TTC eye ointment	14 (28)	36 (44)	26 (4)	11 (69)
Encourage exclusive breastfeeding	37 (74)	74 (90)	39 (67)	12 (75)
Advise to delay bathing	29 (58)	43 (52)	24 (41)	6 (38)
Encourage skin to skin contact	22 (44)	41 (50)	28 (48)	5 (31)
Provide cord care	1 (2)	25 (31)	4 (7)	2 (13)
Education on cord care	6 (12)	23 (28)	7 (12)	6 (38)
Vaccinate for polio and BCG	33 (66)	45 (55)	34 (59)	9 (56)
Teach danger sign recognition using family health card	10 (20)	30 (37)	22 (38)	5 (31)
Main components of subsequent PNC visit				
Check for newborn danger signs	23 (46.0)	47 (57)	39 (67)	4 (25)
Advice to keep cord clean	24 (48.0)	51 (62)	35 (60)	10 (63)
Assess breastfeeding	35 (70.0)	75 (92)	48 (83)	12 (75)
Advise on breastfeeding	41 (82.0)	66 (81)	48 (83)	15 (94)
Ensure baby is kept warm	24 (48.0)	45 (55)	30 (52)	7 (44)
Check baby's weight	26 (52.0)	33 (40)	30 (52)	7 (44)

Table 4.9c HEWs' unprompted knowledge of health provision across the continuum of care, by region: newborn special condition care

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of HEWs	**50**	**82**	**58**	**16**
Newborn care				
Birth asphyxia				
Signs				
Breathing poorly (less than 30 breaths per minute)	27 (54)	31 (38)	20 (35)	3 (19)
Management				
Position baby on back	25 (50)	39 (48)	35 (60)	6 (38)
Clear the airways with gauze	31 (62)	50 (61)	26 (45)	5 (31)
Use Ambu bag	31 (62)	59 (72)	29 (50)	10 (63)
Refer to health centre/hospital	21 (42)	34 (42)	27 (47)	8 (50)
3 follow-up visits	7 (14)	12 (15)	8 (14)	1 (6)
Management newborns less than 1.5kg				
Continue feeding with expressed breast milk	33 (66)	38 (46)	31 (53)	2 (13)
Monitor ability to breastfeed	25 (50)	43 (52)	29 (50)	7 (44)
Cover baby well including head	29 (58)	36 (44)	28 (48)	5 (31)
Hold close to mother	25 (50)	31 (38)	25 (43)	7 (44)
Refer urgently with mother to hospital	42 (84)	65 (79)	43 (74)	13 (81)
Managing newborns 1.5-2.5 kg/32-27 weeks of gestation				
Make sure baby is warm	36 (72)	44 (54)	26 (45)	8 (50)
Monitor ability to breastfeed	32 (64)	47 (57)	42 (72)	10 (63)
Monitor baby for the first 24 hours	16 (32)	25 (31)	20 (35)	1 (6)
Education on cord care	10 (20)	28 (34)	12 (21)	2 (13)
Educate on breastfeeding	40 (80)	58 (71)	44 (76)	9 (56)
Bacterial infection of cord				
Give amoxicillin for 5 days	11 (22)	7 (9)	14 (24)	0 (0)
Breastfeed more frequently	18 (36)	29 (35)	22 (38)	3 (19)
Severe jaundice				
Breastfeed more frequently	22 (44)	25 (31)	24 (41)	6 (38)
Refer urgently	33 (66)	47 (57)	34 (59)	8 (50)
Cover baby well	7 (14)	18 (22)	13 (22)	1 (6)
Keep baby close to maternal body	6 (12)	17 (21)	12 (21)	0 (0)
Moderate dehydration				
Give breast milk	30 (60)	60 (73)	45 (78)	5 (31)
Zinc for 10 days	17 (34)	23 (28)	26 (45)	8 (50)
Breastfeed more frequently	36 (72)	64 (78)	41 (71)	7 (44)
Follow up in 2 days	11 (22)	24 (29)	22 (38)	0 (0)
Severe dehydration				
Refer urgently	44 (88)	64 (78)	47 (83)	10 (63)
Give ORS on the way to facility	37 (74)	59 (72)	44 (77)	11 (69)
Breastfeed more frequently	34 (68)	53 (65)	37 (65)	6 (38)
Advise mother to keep newborn warm	14 (28)	34 (42)	22 (39)	3 (19)
Severe newborn illness management				
Continue to breastfeed	32 (64)	40 (49)	32 (55)	7 (44)
Keep airways open	12 (24)	18 (22)	13 (22)	0 (0)
Refer to higher facility	42 (84)	72 (88)	48 (83)	12 (75)

4.3.4 Supervision

The CBNC programme relies on the existing weekly supervisory visits of health centre staff to the health posts to provide CBNC-specific technical support.

In this survey, 82% of HEWs had received supportive supervision in the three months prior to the survey.(Table 4.10) Among those that received supervision, 86% reported visits from health centres and half from woreda health offices. On average, HEWs received five supervisory visits in the previous three months. Less than half the HEWs reported that the supervisory visits covered discussions on newborn special condition care; for example management of very severe disease was discussed with 41% of HEWs.

HEWs were also asked about iCCM specific supportive supervision: 45% reported a visit in the previous three months. These were mainly conducted by the health centres and woreda health offices.

4.3.5 HEW linkage with the HDA in the last three months

HEWs and HDA leaders play an important role in the CBNC programme. The HEWs are supported by HDA leaders, who are voluntary community health promoters. Each HDA leader is networked with up to five households. Four or five HDA 1-5 networks are managed by one team leader and this linkage is referred to as the 1-30 network, or one development team.

Almost all HEWs reported the presence of HDA leaders in their kebeles (98%).(Table 4.11) In the clusters that were visited there were a mean number of 136 one-to-five networks and 24 one-to-thirty networks.

CBNC aims to further strengthen the existing mentoring, coaching and follow-up of HDA leaders by HEWs. In this survey, HEWs were asked about their links with the HDA in the previous three months. (Table 4.11) The majority of HEWs had oriented the HDA on pregnancy identification, demand generation for MNCH services and reporting pregnancies. However, only half the HEWs had provided training on how to use the family health card. Ninety percent of HEWs reported conducting monthly meetings with HDA leaders. With respect to reporting from HDA leaders in the same time period, over 80% of HEWs received information on pregnant women, deliveries and birth control status. Only half the HEWs reported receiving information on neonates with danger signs.

With respect to reporting from HDA leaders...over 80% of HEWs received information on pregnant women, deliveries and birth control status. Only half the HEWs reported receiving information on neonates with danger signs."

Table 4.10 Supervision visits received by HEWs at health posts in the previous three months, by region

	Amhara	Oromia	SNNP	Tigray
	n (%)	n (%)	n (%)	n (%)
Total N of HEWs	**50**	**82**	**58**	**16**
General supportive supervisions				
Received supportive supervision	34 (68)	68 (83)	50 (86)	16 (100)
Sources of general supportive supervision				
Federal Ministry of Health	0 (0)	1 (2)	0 (0)	2 (13)
Regional health bureau	1 (3)	2 (3)	1 (2)	6 (38)
Zone health department	7 (21)	5 (7)	7 (14)	3 (19)
Woreda health office	20 (59)	26 (38)	31 (62)	12 (75)
PHCU/health centre	29 (85)	60 (88)	44 (88)	11 (69)
NGO	9 (27)	15 (22)	4 (8)	4 (25)
Other	0 (0)	2 (3)	1 (2)	0 (0)
Number of supervisory visits*				
Mean (SD)	3 (3)	6 (4)	5 (4)	2 (2)
Components discussed during supervision*				
Reporting from HDA on early identification of pregnancy	27 (79)	56 (82)	43 (86)	14 (88)
Provision of focussed ANC	28 (82)	57 (84)	44 (88)	12 (75)
Promotion of institutional delivery	28 (82)	61 (90)	45 (90)	13 (81)
Safe & clean delivery	26 (77)	53 (78)	39 (78)	11 (69)
Immediate newborn cord care	7 (21)	23 (34)	17 (34)	2 (13)
Recognition of asphyxia	10 (29)	18 (27)	24 (48)	6 (38)
Prevention/management of hypothermia	12 (35)	24 (35)	26 (52)	5 (31)
Management of pre-term and/or low birth weight neonates	9 (27)	26 (38)	18 (36)	5 (31)
Management of very severe disease in newborns	9 (27)	24 (35)	30 (60)	6 (38)
Received iCCM-specific supportive supervision**	17 (34)	34 (42)	31 (53)	10 (63)
iCCM visit from:				
Federal Ministry of Health	0 (0)	1 (3)	1 (3)	0 (0)
Regional health bureau	1 (6)	2 (6)	1 (3)	4 (40)
Zone health department	1(6)	3 (9)	6 (19)	2 (20)
Woreda health office	9 (53)	8 (24)	16 (52)	8 (80)
PHCU/health centre	9 (53)	12 (35)	18 (58)	6 (60)
NGO	5 (29)	17 (50)	5 (16)	3 (30)
Other	0 (0)	1 (3)	1 (3)	0 (0)

*Based on the 168 that received supportive supervision visit in the last three months

** Based on the 92 that had received iCCM-specific supportive supervision

Table 4.11 HEWs' and HDA leaders' linkage, by region

	Amhara	Oromia	SNNP	Tigray
	n (%)	n (%)	n (%)	n (%)
Total N HEWs	**50**	**82**	**58**	**16**
Presence of HDA in the kebele	49 (98)	79 (96)	58 (100.0)	16 (100)
Number of HDA 1-5 networks				
Mean (SD)	162 (121)	128 (98)	123 (90)	148 (62)
Number of HDA 1-30 networks				
Mean (SD)	30 (16)	22 (18)	19 (24)	30 (12)
Training provided to HDA by HEW in last 3 months*				
MNH problem in the community	38 (78)	70 (89)	53 (91)	16 (100)
Importance of early identification of pregnant woman	39 (80)	74 (94)	53 (91)	16 (100)
Importance of ANC	42 (86)	75 (95)	53 (91)	16 (100)
How to approach pregnant women in the community	34 (69)	68 (86)	50 (86)	16 (100)
How to register pregnant women in the community	38 (78)	65 (82)	54 (93)	14 (88)
How to report pregnant women to HEWs	39 (80)	68 (86)	54 (93)	16 (100)
Recognising danger signs	34 (69)	59 (75)	52 (90)	16 (100)
Recognising danger signs for mother (along the continuum of care)	36 (74)	55 (70)	51 (88)	15 (94)
Recognising danger signs for newborn	25 (51)	54 (68)	47 (81)	15 (94)
Use of the family health card	14 (29)	43 (54)	38 (66)	11 (69)
Generating demand for MNCH services	34 (69)	60 (76)	54 (93)	15 (94)
Activities conducted with HDA in last 3 months				
Conduct monthly meetings	44 (90)	65 (82)	58 (100)	16 (100)
Plan activities together	34 (69)	54 (68)	57 (98)	15 (94)
Set and review targets	34 (69)	55 (70)	53 (91)	16 (100)
Provide supportive supervision	32 (65)	59 (75)	50 (86)	15 (94)
Discuss and/or accept referrals	38 (78)	53 (67)	42 (72)	13 (81)
Others	9 (18)	9 (11)	9 (16)	1 (6)
Information received from HDA in last 3 months				
Number of women of reproductive age in the community	15 (31)	60 (76)	33 (57)	15 (94)
Reproductive history of women in the community	29 (59)	50 (63)	40 (69)	14 (88)
Family planning status of women in the community	38 (78)	63 (80)	54 (93)	13 (81)
Number of pregnant women in the community	49 (100)	75 (95)	56 (97)	16 (100)
Number of deliveries	43 (88)	68 (86)	52 (90)	15 (94)
Number of newborns	45 (92)	66 (84)	48 (83)	15 (94)
Number of newborns with danger signs	20 (41)	46 (58)	34 (59)	11 (69)

* Based on the 202 HEWs that reported having HDA in their respective kebele

4.4 Health Development Army

A total of 605 HDA leaders were interviewed for this survey (96% of the intended total).[14] Like HEWs, HDA leaders were asked about their background (age, years of schooling, duration of service and number of catchment households), their training in the last twelve months, their knowledge on health promotion across the continuum of care, their supervision, and the services they had provided in the three months prior to the survey.

4.4.1 HDA leaders' background information and service history

The overall mean age of HDA leaders was 35 years and on average the members had completed three years of education. HDA leaders (both 1-5 and 1-30 network leaders) reported, on average, having nine households under their care and 18 months of service. HDA demographics by region are shown in Table 4.12.

As shown in Figure 4.20, as HDA leaders are selected from their own community, 98% reported residing in the kebele where they work. Similarly HEWs are also expected to reside in the kebele where they provide health services. In this survey 87% of HEWs had successfully established residence in the kebele where the health post is located. As part of their activities, almost all the HEWs reported convening pregnant women's conferences in the last three months and 30% of the HDA reported supporting such meetings.

Table 4.12 HDA leaders' background information and service history, by region

	Amhara	Oromia	SNNP	Tigray
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Total N of HDA leaders	**143**	**235**	**169**	**48**
Age in years	34 (9)	35 (10)	35 (9)	34 (8)
Years of Schooling	2 (4)	3 (3)	3 (3)	2 (3)
Duration of service in months	19 (17)	7 (7)	21 (17)	31 (16)
N of households receiving care from HDA	9 (9)	9 (9)	9 (9)	6 (5)

4.4.2 Training received across the continuum of care in the last 12 months

CBNC aims to improve maternal and newborn care practices and care seeking through the HDA. The HDA leaders have the role of counselling and undertaking social mobilisation activities to increase the knowledge, attitude and health seeking behaviour of mothers. The HDA leaders also meet with the HEWs regularly and report on new information in their community with a focus on pregnancies and newborns. Furthermore, within the context of CBNC, HDA leaders are expected to counsel families to follow through with referrals to health posts and health centres and also support treatment compliance and home management of sick neonates.

Table 4.13 shows the training received by HDA leaders on health promotion across the continuum of care. With respect to ANC, less than half the HDA leaders reported having received any training in the last 12 months. Forty-seven percent had been trained in promoting a birth preparedness plan. A little under 45% had been trained on using the family health card, pregnancy identification and referring pregnant women to a higher facility for ANC care (44%, 42% and 43%, respectively). Training on how to educate on pregnancy-related danger signs was provided to 39% of HDA leaders.(Figure 4.21)

For the childbirth period, 60% of HDA leaders had been trained to promote institutional delivery. A little over 40% of HDA leaders had been trained on how to provide home visits, refer to a higher facility for PNC care and refer sick newborns. Thirty-eight percent were trained on how to educate mothers on newborn danger signs.(Figure 4.22)

14. Nine HDA leaders were dropped as the PHCUs they represented were remote. Four PHCU clusters did not have an HDA system in place.

Figure 4.20 HEWs' (N=206) and HDA leaders' (N=605) residence and activities

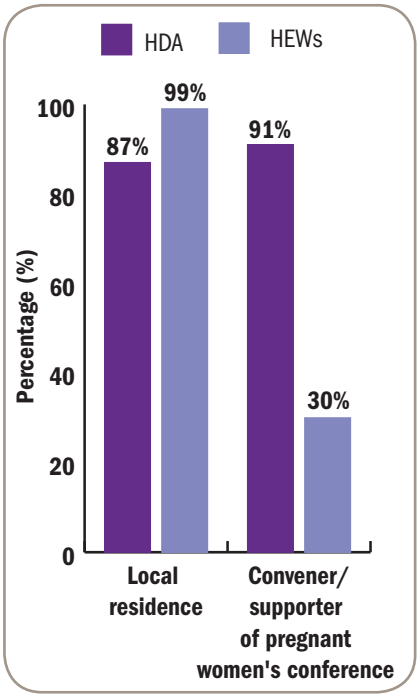


Figure 4.21 Training received by HDA leaders in the previous twelve months: ANC period (N=605)

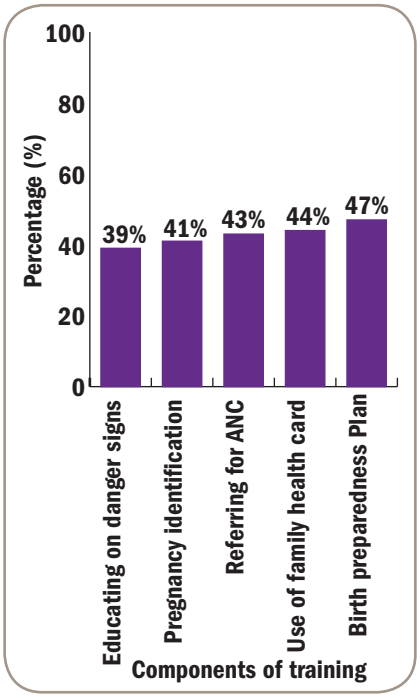


Figure 4.22 Training received by HDA leaders in the previous twelve months: postnatal period (N=605)

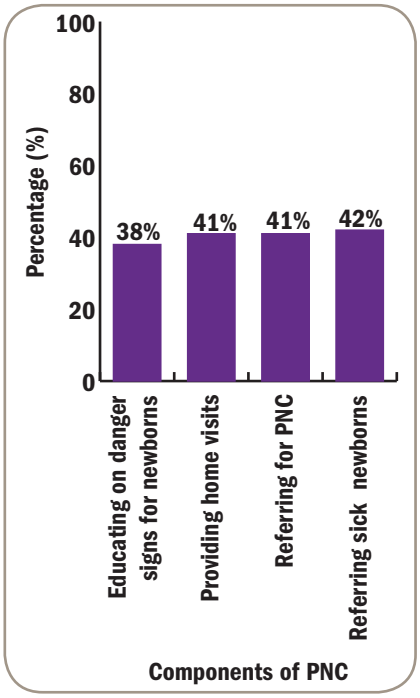


Table 4.13 Training received by HDA leaders on health promotion across the continuum of care in the last 12 months, by region

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of HDA leaders	**146**	**239**	**172**	**48**
ANC period				
Pregnancy identification	49 (34)	104 (44)	57 (33)	40 (83)
Use of family health card	51 (35)	130 (54)	53 (31)	32 (67)
Educating on danger signs	46 (32)	108 (45)	52 (30)	31 (65)
Referring for ANC care	47 (32)	117 (49)	66 (38)	30 (63)
Birth preparedness plan	55 (38)	121 (51)	74 (43)	34 (71)
Childbirth period				
Promotion of institutional delivery	75 (51)	153 (64)	92 (54)	43 (90)
Postnatal period				
Providing home visits	48 (33)	99 (41)	63 (37)	37 (77)
Referring for PNC care	45 (31)	107 (45)	67 (39)	30 (63)
Educating on danger signs for newborns	43 (30)	99 (41)	55 (32)	33 (69)
Referring sick newborns	49 (34)	102 (43)	70 (41)	34 (71)

Figure 4.23 HDA leaders' unprompted knowledge of key focused ANC components (N=605)

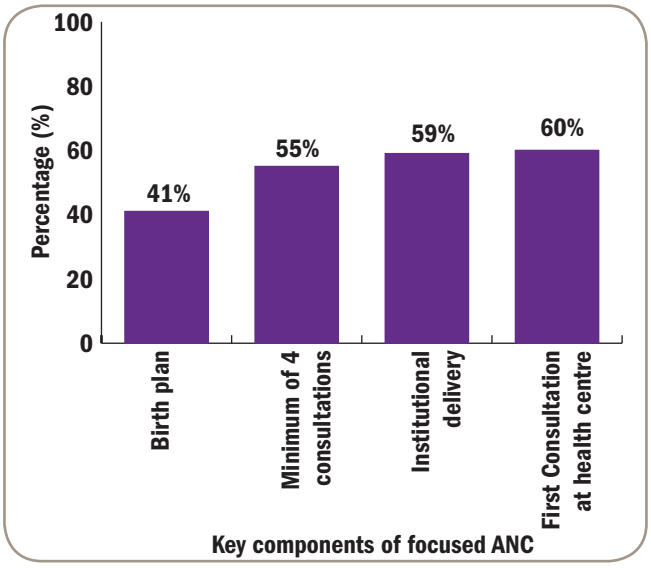


Figure 4.24 HDA leaders' unprompted knowledge of the key components of clean and safe delivery at home (N=605)

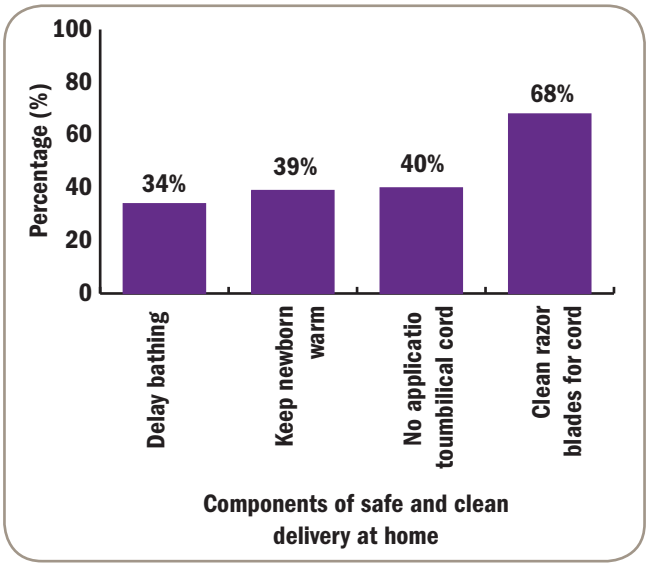


Table 4.14 HDA leaders' unprompted knowledge on health promotion across continuum of care, by region

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of HDA leaders	**146**	**239**	**172**	**48**
ANC period				
Focused ANC components				
Minimum 4 ANC consultations	56 (38)	146 (61)	88 (52)	39 (81)
First ANC consultation at health centre	84 (58)	148 (62)	97 (57)	32 (67)
Ensure a birth plan	51 (35)	103 (43)	76 (45)	15 (31)
Institutional delivery	81 (56)	126 (53)	110 (65)	40 (83)
Danger signs across the continuum of care	28 (19)	72 (30)	31 (18)	22 (46)
Breastfeeding	49 (34)	96 (40)	92 (54)	23 (48)
Family planning	42 (29)	106 (44)	52 (31)	31 (65)
Nutrition	60 (41)	142 (59)	73 (43)	25 (52)
Childbirth period				
Components of home delivery care				
Using clean razor blade	104 (71)	150 (63)	127 (75)	31 (65)
Not putting anything on the umbilical cord	51 (35)	90 (38)	72 (42)	26 (54)
Keeping newborn warm	54 (37)	78 (33)	76 (45)	25 (52)
Delaying bathing	30 (21)	86 (36)	64 (38)	27 (56)
Postnatal period				
Components of post-delivery care				
Timely PNC home visits	22 (15)	64 (27)	28 (17)	22 (46)
Checking newborn for danger signs	20 (14)	56 (23)	27 (16)	21 (44)
Vaccination for newborns	70 (48)	126 (53)	98 (58)	39 (81)
Refer to health facility	53 (36)	135 (57)	82 (48)	13 (27)
Breastfeeding	83 (57)	131 (55)	115 (8)	37 (77)

4.4.3 HDA knowledge on health promotion across the continuum of care

HDA leaders were asked about their unprompted knowledge of elements of ANC, childbirth and the postnatal period. (Table 4.14) As part of focused ANC, 60% of HDA leaders cited promotion of the first ANC consultation at the health centre and institutional delivery. Fifty-five percent cited the need for a minimum of four ANC consultations and half mentioned education on nutrition. Ensuring pregnant women have birth plans and promoting breastfeeding were cited by 41% and 43% of HDA leaders, respectively. Thirty-eight percent said to promote family planning and only a quarter said to educate on the danger signs associated with pregnancy. Figure 4.23 shows the distribution of HDA leaders' knowledge of key ANC components across all four regions.

When asked about the components of home delivery care, 68% of HDA leaders had unprompted knowledge of using clean razor blades. Around 40% said not to put anything on the umbilical cord and to keep the baby warm. Only around one-third said to delay bathing.(Figure 4.24)

As part of the components of post-delivery care, 61% of HDA mentioned promoting breastfeeding for the newborn. Vaccination for newborns and referring to a health facility were cited by 55% and 47% of HDA leaders, respectively. Less than a quarter mentioned scheduling timely PNC home visits and checking newborns for danger signs (Figure 4.25).

HEWs' and HDA leaders' unprompted knowledge on key focused ANC components were similar with respect to ANC first consultation being at a health centre and promotion of institutional delivery. (Figure 4.26) A greater gap was observed on knowledge of promoting a birth plan (HEWs 65% vs. HDA leaders 41%) and four ANC consultations (HEWs 70% vs. HDA leaders 55%).

4.4.4 Supportive supervision provided to HDA leaders in the last three months

Twenty-nine percent of HDA leaders reported receiving supportive supervision in the preceding three months. Supportive supervision had been provided by the woreda health office (8%), health centre (21%), HEW (15%) and command post (7%). As shown in Table 4.15, a greater percentage of HDA leaders in Tigray received supervisory visits. On average, HDA leaders had received three supervisory visits in the three months prior to the survey, with Tigray reporting an average of four visits and Amhara reporting two visits. HDA leaders were also provided with tools and materials to support their work. However, less than a quarter reported receiving data collection forms (20%), family health cards (22%) and leaflets on the continuum of care (24%).

4.4.5 HDA services provided in the last three months

In the three months leading up to the survey, on average HDA leaders had identified 3.0 pregnancies and had provided education on ANC-related danger signs to a mean number of 2.3 pregnant women. HDA leaders on average referred 2.7 women to higher facility care and 2.0 women for pregnancy-related danger signs. With respect to PNC home visits, HDA leaders had provided, on average, 2.3 visits. The distribution of services provided by HDA leaders by region is shown in Table 4.16.●

Table 4.15 Health system: supportive supervision provided to HDA leaders in the last three months, by region

	Amhara n (%)	Oromia n (%)	SNNP n (%)	Tigray n (%)
Total N of HDA leaders	**146**	**239**	**172**	**48**
HDA leaders receiving supportive supervision	23 (16)	64 (27)	56 (32.6)	31 (65)
Source of supportive supervision				
Woreda health office	7 (5)	17 (7)	11 (6)	11 (23)
Health centre	20 (14)	46 (19)	43(25)	19 (40)
Health post (HEW)	13 (9)	25 (11)	30 (17)	23 (48)
Command post	1 (1)	12 (5)	18 (11)	11 (23)
Other	0 (0)	3 (1)	2 (1)	0 (0)
Mean number of supervision visits(SD)	**2 (1)**	**3 (2)**	**3 (3)**	**4 (2)**

Figure 4.25 HDA leaders' unprompted knowledge of PNC (N=605)

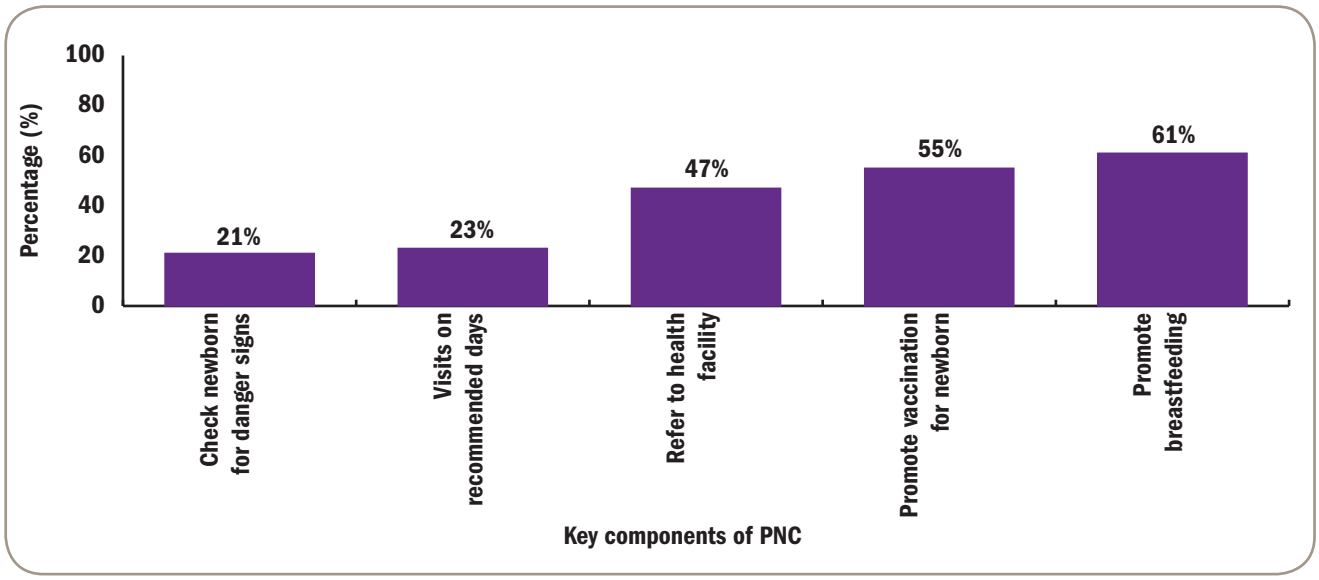


Figure 4.26 Comparison of HEWs' (N=206) and HDA leaders' (N=605) unprompted knowledge of the key components of focused ANC

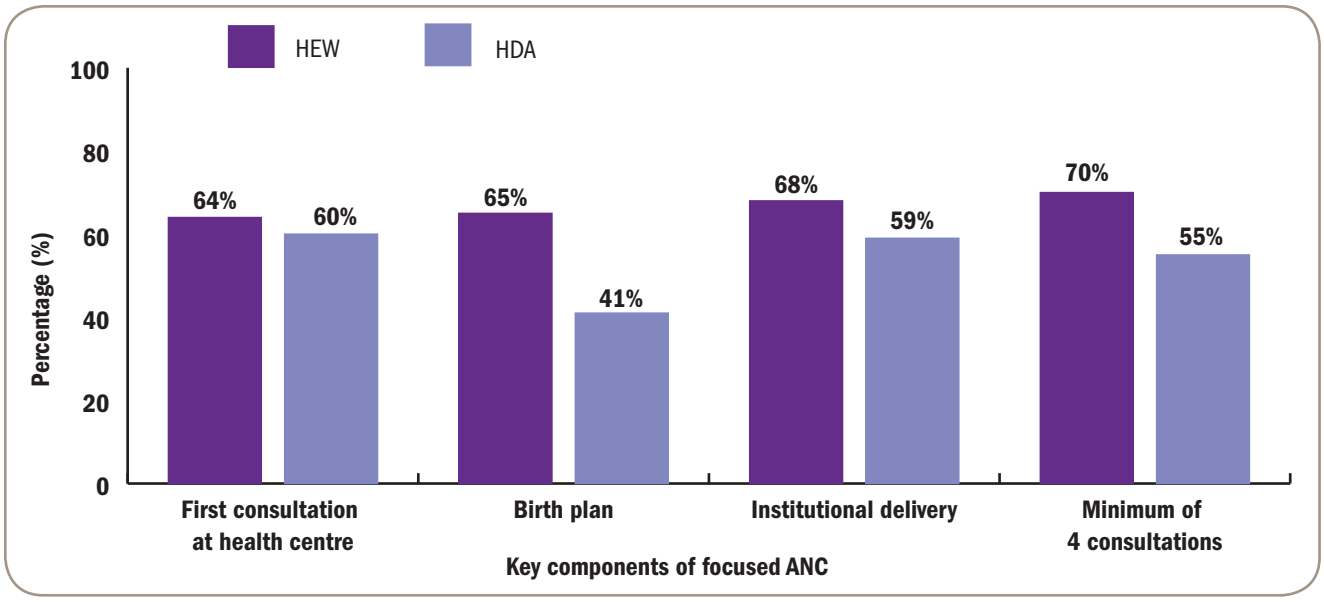


Table 4.16 Average number of women who received services from HDA leaders in the last three months, by region

	Amhara Mean (SD)	Oromia Mean (SD)	SNNP Mean (SD)	Tigray Mean (SD)
Total N of HDA leaders	**146**	**239**	**173**	**48**
Pregnancy identified	2 (1)	3 (1)	4 (2)	2 (1)
Educated on danger signs	3(1)	2 (1)	3 (1)	2 (1)
Facility referral for ANC	2 (1)	2 (2)	3 (2)	2 (1)
Facility referral for danger signs	1 (1)	2 (1)	3 (2)	2 (1)
Number of PNC visits	3 (1)	2 (1)	2 (1)	2 (1)

5. Results: Household Coverage Survey

5.1 Sample selection

Of the 10,450 households that were sampled, 10,295 household heads were present and agreed to participate in this study. There were a total of 10,999 women of reproductive age (15-49 years old) residing in these households, of which 9,999 (91%) were interviewed regarding their fertility history in the previous two years. Among the 9,999 women, 925 had had a live birth in the 12 months preceding the survey and were asked questions about that birth. All respondents provided informed, voluntary written consent to be interviewed. Three call backs were made to interview any absent household heads and all resident women aged 15-49.

Photo: Mother with children, rural village near Sodo, Ethiopia © Dr Neil Spicer

5.2 Characteristics of the women interviewed

On average, women who had had a birth in the previous 12 months were 28 years of age and had two years of education. The majority were married (86%). HDA leaders comprised 20% of the study population, while 6% were 1-30 development team leaders. Characteristics of the 925 women with a birth in the previous 12 months across the four regions are shown in Table 5.1. The regions varied in distribution of religion and a greater percentage of women in Oromia were also HDA leaders.

Household heads were asked about the building materials used to construct their house, the availability and type of toilet, the main source of drinking water, and source of fuel used for cooking. In addition, they were asked about ownership of commodities (e.g. radio, television, mobile phone and fridge), agricultural land, their home and livestock. This was then used to create an index of socioeconomic status for each household using principal components analysis. The households were divided into five equal groups (quintiles) according to the value of the index, the first and fifth quintiles representing the most and least poor, respectively. This was then used to examine if there was a relationship between relative poverty and coverage of ANC, facility birth and PNC (results are shown below in the relevant sections).

Table 5.1 Characteristics of women of reproductive age (15-49 years) with a live birth in the last 12 months, by region

	Amhara		Oromia		SNNP		Tigray	
	n(%)	N	n (%)	N	n (%)	N	n (%)	N
Age Mean (SD)	28 (6)	219	27 (6)	375	28 (6)	231	29 (7)	100
Years of education Mean (SD)	1 (3)	219	2 (3)	371	3 (3)	231	2 (3)	99
Marital status N (%)								
Currently married	188 (86)	219	357 (95)	375	220 (95)	231	88 (89)	99
In a union	8 (4)	219	4 (1)	375	6 (3)	231	0 (0)	99
Never married	2 (1)	219	1 (0.3)	375	3 (1)	231	1 (1)	99
Divorced	17 (8)	219	9 (2)	375	2 (1)	231	6 (6)	99
Widowed	3 (1)	219	3 (1)	375	0 (0)	231	2 (2)	99
Not applicable	1 (0.5)	219	1 (0.3)	375	0 (0)	231	2 (2)	99
Religion N (%)								
Orthodox	205 (94)	218	153 (41)	375	50 (22)	231	100 (100)	100
Catholic	0 (0)	218	0 (0)	375	11 (5)	231	0 (0)	100
Protestant	0 (0)	218	98 (26)	375	144 (62)	231	0 (0)	100
Muslim	13 (6)	218	120 (32)	375	26 (11)	231	0 (0)	100
Other	0 (0)	218	4 (1)	375	0 (0)	231	0 (0)	100
Not applicable	0 (0)	218	0 (0)	375	0 (0)	231	0 (0)	100
HDA N (%)								
HDA 1-5 leaders	22 (10)	217	126 (33)	374	22 (10)	231	11 (11)	100
Development team leaders	12 (6)	215	33 (9)	365	5 (2)	231	6 (6)	100

“

The majority of women were not knowledgeable about pregnancy-related danger signs with less than 40% naming any one of the key danger signs.”

5.3 ANC period

CBNC aims to identify pregnant women early so that there is an increased opportunity for ANC, delivery and early PNC contact. This can increase access to newborns that need special care. ANC coverage in the different regions is shown in Table 5.2a.

In this study, 69% of the women interviewed reported that they had at least one ANC visit during their pregnancy, which is twice the figure of the data extracted from PHCU level records. The lower figure from the facility level may be due to poor record keeping, incomplete transfer of data from health posts to health centres and/or high target setting by the PHCUs.

The mean gestational age at the first ANC visit was 16 weeks; on average, ANC visits were taking place in the second trimester. Twenty-nine percent of women were seen during their first trimester and the distribution by region is shown in Figure 5.1.

Among women who had at least one ANC visit, the percentage of those seen in the first trimester increases to 39%. Sixty-six percent of women received ANC at a health centre and 4% at a hospital. Thirty-nine percent of women had four or more ANC visits.(Figure 5.2) When restricting this analysis to those that had at least one ANC visit, over half went on to have four or more ANC visits.

Having four or more pregnancy interactions among women who were from the least poor households was 64% higher compared to those from the most poor (33% vs. 54%). (Figure 5.3)

With respect to care provided during ANC visits, the majority had their weight and blood pressure measured and 70% received information on HIV. Iron and folate tablets were provided to 60% of all women. Approximately half had received two or more TT vaccines, information on birth preparedness, breastfeeding and pregnancy related danger signs. Forty percent had their urine samples assessed and less than a quarter had their blood sample and STI status assessed.

Maternal knowledge on birth preparedness was assessed among women who attended at least one ANC visit. Almost all women cited the importance of preparing nutritious food. Clean clothes and a new razor were cited by 73% and 61% of women, respectively. Over half also mentioned making financial preparations. The other components of birth preparedness were mentioned by less than half of the study population. Women were also asked about their unprompted knowledge of pregnancy-related danger signs. The majority of women were not knowledgeable about pregnancy-related danger signs with less than 40% naming any one of the key danger signs.

In practice, among women who had at least one ANC visit, 88% made some form of birth preparation. Level of birth preparedness with respect to the six clean birth components (gloves, soap, cover to deliver on, clean clothes, sterilised scissors/new razor and sterilised thread) were assessed and compared between all the women and those that had at least one ANC visit. (Figure 5.4)

Women who had one ANC interaction were also asked if they had attended any pregnant women’s conference, to which 23% said ‘yes’. The meetings promoted institutional delivery (88%), birth preparedness (80%) and ANC visits (75%). Seeking newborn care and importance of PNC were reported to have been discussed in only 67% and 58% of the meetings, respectively. Compared with other regions, fewer meetings in the SNNP region were reported to have covered the different topics across the continuum of care. Pregnant women’s conferences were mainly held at health posts and 15% of women also said they were held at health centres. (Table 5.2b)

Figure 5.1 ANC received during first trimester among all women, by region

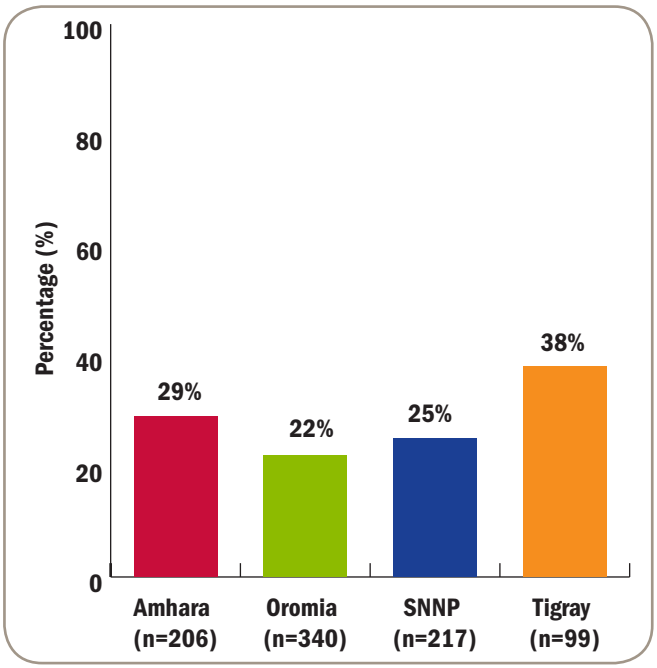


Figure 5.2 No. of ANC visits during last pregnancy among study women (N=878)

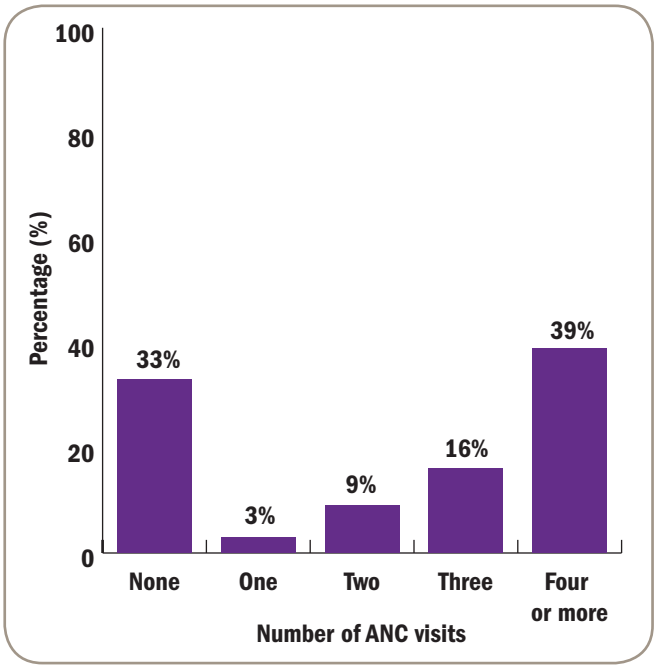


Figure 5.3 Coverage of four ANC visits or more among all women, by socio-economic status of household (N=878)

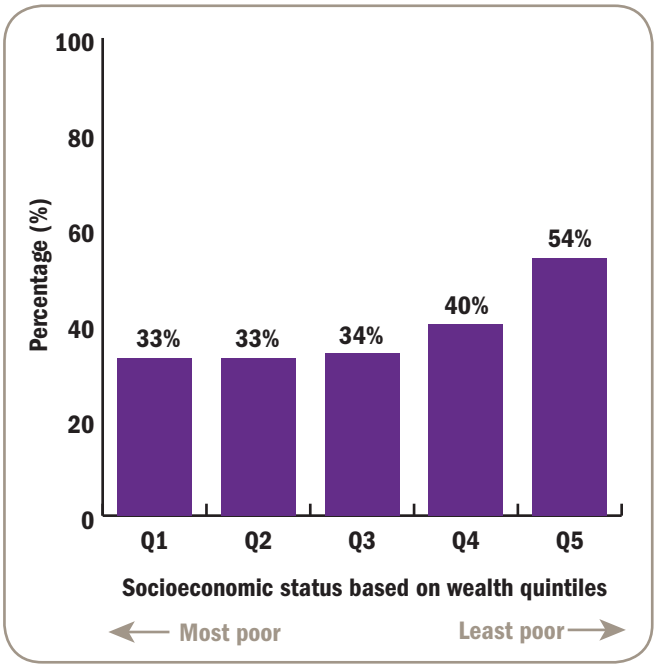
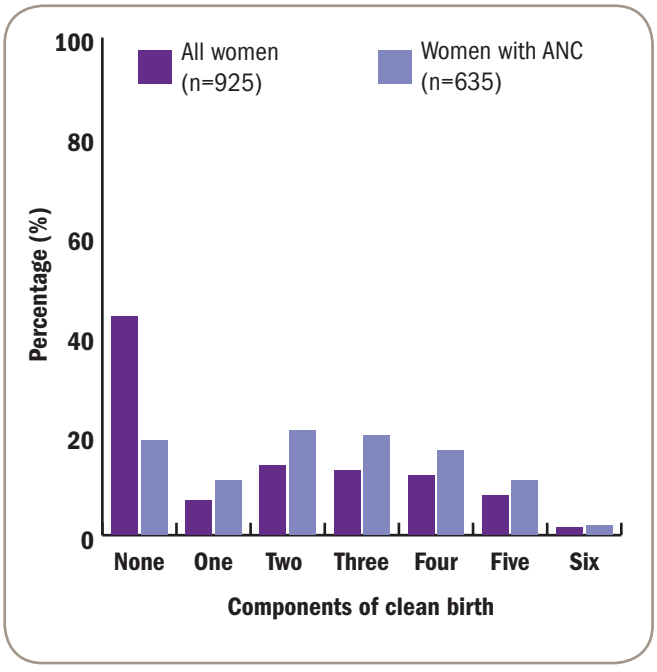


Figure 5.4 Level of birth preparedness with respect to six clean birth components* among women



*Prepared for the following components: gloves, soap, cover to deliver on, clean clothes, sterilised scissors/new razor and sterilised thread

Table 5.2a ANC period: identification of pregnancy and ANC coverage, completeness, knowledge and practice among women, by region

	Amhara		Oromia		SNNP		Tigray	
	n(%)	N	n (%)	N	n (%)	N	n (%)	N
Early Pregnancy Identification								
Gestational age in weeks at 1st ANC visit, Mean (SD)	15 (8)	123	17 (8)	224	16 (9)	137	16 (18)	87
ANC coverage								
Any ANC during pregnancy	135 (62)	219	259 (69)	374	149 (65)	229	92 (93)	99
ANC received during first trimester	60 (29)	206	73 (22)	340	55 (25)	217	36 (38)	94
Place where ANC was received								
Home	25 (19)	135	19 (8)	254	15 (10)	149	10 (11)	92
Health post	59 (43)	136	104 (41)	255	81 (54)	150	50 (54)	92
Health centre	101 (75)	135	173 (67)	258	74 (50)	149	68 (75)	91
Hospital	2 (2)	135	11 (4)	255	6 (3)	149	3 (4)	92
Other	1 (1)	130	7 (3)	230	2 (1)	144	1 (1)	88
Completeness of ANC visit								
N of ANC visits during last pregnancy								
None	84 (39)	214	115 (33)	353	80 (37)	218	7 (8)	93
One	8 (4)	214	8 (2)	353	8 (4)	218	4 (4)	93
Two	25 (12)	214	32 (9)	353	18 (8)	218	5 (5)	93
Three	35 (16)	214	59 (17)	353	31 (14)	218	18 (19)	93
Four or more	62 (30)	214	139 (39)	353	81 (37)	218	59 (63)	93
N of ANC visits during last pregnancy among those that had any ANC visit								
One	8 (6)	130	8 (3)	238	8 (6)	138	4 (5)	86
Two	25 (19)	130	32 (13)	238	18 (13)	138	5 (6)	86
Three	35 (27)	130	59 (25)	238	31 (23)	138	18 (21)	86
Four or more	62 (48)	130	139 (58)	238	81 (59)	138	59 (69)	86
ANC by individual aspect of care								
Weight measured	96 (71)	135	210 (81)	259	111 (75)	149	84 (91)	92
Height measured	41 (30)	135	112 (43)	259	46 (31)	149	32 (35)	92
Blood pressure measured	98 (73)	135	208 (80)	259	92 (62)	149	67 (73)	92
Urine sample assessed	42 (31)	135	132 (51)	258	37 (25)	149	50 (54)	92
Blood sample assessed	16 (13)	128	44 (18)	243	17 (13)	136	30 (36)	84
STI status assessed	8 (6)	135	88 (34)	258	14 (10)	137	29 (32)	91
HIV information	86 (64)	135	177 (68)	259	97 (71)	137	85 (97)	88
Breastfeeding information	60 (44)	135	135 (52)	259	89 (60)	149	66 (73)	91
Nutrition information	89 (66)	135	171 (66)	259	87 (64)	136	82 (92)	89
Birth preparedness information	79 (59)	135	145 (56)	259	68 (49)	140	63 (70)	90
Pregnancy danger signs information	61 (45)	135	109 (42)	258	59 (42)	140	57 (63)	91
Folate/iron tablets received	93 (69)	135	115 (44)	259	100 (67)	149	72 (78)	92
TT vaccine:								
None	76 (56)	135	44 (17)	259	35 (24)	149	38 (41)	92
One	15 (11)	135	42 (16)	259	19(13)	149	27 (29)	92
Two or more	43 (32)	135	173 (67)	259	95 (64)	149	27 (29)	92

Table 5.2a ANC period: identification of pregnancy and ANC coverage, completeness, knowledge and practice among women, by region, continued

	Amhara		Oromia		SNNP		Tigray	
	n(%)	N	n (%)	N	n (%)	N	n (%)	N
Maternal knowledge								
Birth preparedness components								
Financial preparation	51 (39)	130	147 (57)	259	78 (53)	146	55 (60)	92
Transport for delivery	11 (9)	127	29 (11)	254	14 (9)	149	15 (16)	92
Nutritious food	116 (87)	134	246 (95)	259	130 (87)	149	83 (90)	92
Identify birth attendant	28 (22)	128	66 (26)	259	18 (12)	149	34 (37)	92
Identify facility for delivery	35 (27)	129	83 (32)	259	33 (22)	149	49 (53)	92
Identification of blood donor	1 (0.8)	128	6 (2)	257	2 (1)	149	6 (7)	91
Clean clothes	84 (63)	134	202 (78)	259	98 (66)	149	77(84)	92
Cover to deliver on	22 (17)	131	157 (61)	258	40 (27)	149	68 (74)	92
Gloves	7 (5)	129	8 (3)	256	3 (2)	149	10 (11)	92
Cotton gauze	2 (2)	128	6 (2)	256	5 (3)	149	12 (13)	92
Soap	52 (39)	132	137 (53)	259	50 (34)	149	36 (39)	92
New razor blades	96 (72)	133	151 (59)	258	83 (56)	149	55 (60)	92
Sterilised scissors	8 (6)	130	14 (5)	257	6 (4)	149	10 (11)	92
Sterilised thread	10 (8)	128	85 (33)	256	19 (13)	148	25 (27)	92
ANC danger signs								
Vaginal bleeding	35 (27)	132	91 (35)	258	61 (41)	148	27 (30)	91
Severe abdominal pain	39 (29)	134	124 (48)	259	47 (32)	149	34 (37)	92
Offensive discharge	23 (18)	131	63 (24)	258	27 (18)	148	32 (35)	92
Fever	47 (35)	134	101 (39)	259	31 (21)	149	44 (48)	92
Headache, dizziness, or blurred vision	41 (31)	132	86 (33)	258	26 (17)	149	40 (44)	92
Convulsions or unconsciousness	17 (13)	132	39 (15)	259	7 (5)	149	22 (24)	92
Swollen hands and face	12 (9)	132	86 (33)	258	20 (13)	149	20 (22)	90
Maternal practice								
Any formal birth preparedness	110 (85)	130	228 (89)	256	125 (90)	139	63 (88)	72
Components of birth preparedness								
Financial preparation	50 (44)	113	153 (65)	236	81 (59)	138	55 (65)	85
Transport for delivery	7 (6)	112	30 (13)	234	9 (7)	138	19 (22)	85
Nutritious food	109 (93)	117	231 (98)	236	136 (99)	138	82 (97)	85
Identify birth attendant	31 (28)	112	74 (31)	236	23 (17)	138	32 (38)	85
Identify facility for delivery	30 (26)	114	83 (35)	236	37 (27)	138	41 (48)	85
Identification of blood donor	0 (0)	112	4 (2)	234	1 (1)	138	4 (5)	85
Clean clothes	83 (71)	117	193 (82)	236	96 (70)	138	72 (85)	85
Cover to deliver on	23 (20)	114	153 (65)	234	42 (30)	138	65 (77)	85
Gloves	6 (5)	113	9 (4)	233	5 (4)	138	7 (8)	85
Cotton gauze	3 (3)	113	10 (4)	233	1 (1)	138	5 (6)	84
Soap	58 (50)	116	133 (57)	234	53 (38)	138	30 (36)	84
New razor blades	99 (85)	117	152 (65)	234	84 (61)	138	54 (64)	84
Sterilised scissors	4 (4)	114	15 (6)	233	4 (3)	138	6 (7)	84
Sterilised thread	14 (13)	112	88 (38)	234	22 (16)	138	26 (31)	84
Other	4 (4)	102	8 (4)	203	3 (2)	127	6 (8)	80

Table 5.2a ANC period: identification of pregnancy and ANC coverage, completeness, knowledge and practice among women, by region, continued

	Amhara		Oromia		SNNP		Tigray	
	n(%)	N	n (%)	N	n (%)	N	n (%)	N
Maternal practice, continued								
Level of birth preparedness with respect to six clean birth components among all women*								
None	113 (52)	219	163 (44)	375	116 (50)	231	9 (9)	100
One	17 (8)	219	22 (6)	375	22 (10)	231	6 (6)	100
Two	33 (15)	219	39 (10)	375	35 (15)	231	24 (24)	100
Three	35 (16)	219	36 (10)	375	29 (13)	231	24 (24)	100
Four	11 (5)	219	60 (16)	375	23 (10)	231	13 (13)	100
Five	9 (4)	219	49 (13)	375	5 (2)	231	8 (8)	100
Six	1 (1)	219	6 (2)	375	1 (0.4)	231	6 (6)	100
Level of birth preparedness with respect to six clean birth components among women with any ANC visit*								
None	29 (22)	135	47 (18)	259	34 (23)	149	11 (12)	92
One	17 (13)	135	22 (9)	259	22 (15)	149	6 (7)	92
Two	33 (24)	135	39 (15)	259	35 (24)	149	24 (26)	92
Three	35 (26)	135	36 (14)	259	29 (20)	149	24 (26)	92
Four	11 (8)	135	60 (23)	259	23 (15)	149	13 (14)	92
Five	9 (7)	135	49 (19)	259	5 (3)	149	8 (9)	92
Six	1 (1)	135	6 (2)	259	1 (1)	149	6 (7)	92

*Prepared for the following components: gloves, soap, cover to deliver on, clean clothes, sterilised scissors/new razor and sterilised thread

Table 5.2b Pregnant women's conference attendance among women who had an ANC visit, by region

	Amhara		Oromia		SNNP		Tigray	
	n (%)	N	n (%)	N	n (%)	N	n (%)	N
Pregnant women's conference								
Attended	34 (26)	132	46 (18)	258	44 (30)	149	23 (25)	92
Discussion contents								
Birth preparedness	29 (85)	34	38 (84)	45	31 (71)	44	18 (78)	23
Importance of ANC	24 (73)	33	39 (87)	45	26 (59)	44	19 (83)	23
Institutional delivery	27 (82)	33	42 (93)	45	35 (80)	44	23 (100)	23
Importance of postnatal care	21 (62)	34	36 (80)	45	12 (27)	44	16 (70)	23
Seeking newborn care	25 (76)	33	36 (80)	45	20 (46)	44	16 (70)	23
Place of meeting								
Home of HDA leader	0 (0)	34	0 (0)	45	1 (2)	44	3 (13)	23
Kebele/gote meeting place	8 (24)	34	19 (42)		14 (32)	44	6 (26)	23
Health post	21 (62)	34	18 (40)	45	22 (50)	44	10 (43)	23
Health centre	5 (15)	34	8 (18)	45	7 (16)	44	4 (17)	23

Photo opposite: Woman and child, Butajira, Ethiopia © Dr Neil Spicer

5.4 Childbirth period

Women were asked about the place of delivery and primary assistance at delivery; the results are shown in Table 5.3a. Facility birth, defined by the Ethiopian Government to include hospital and health centre births, was 23%. Another 3% of deliveries took place at a health post. Figure 5.5 shows the distribution of home and facility deliveries by region. The majority of women delivered at home (72%). Twenty-seven percent of women delivered in the presence of a skilled birth attendant, while the deliveries of 44% of women were attended by a relative or a friend.

When asked about the multiple reasons for choosing a place of delivery, 61% of women chose to deliver at home because that was where they had given birth in the past, due to family practice.(Figure 5.6) Among those that delivered at a health facility, half said that it was convenient. Other reasons included the existence of underlying illness or delivery related complications such as a prolonged labour (32% and 29%, respectively). Twenty-three percent of women also said they delivered at a facility due to their attendance at a pregnant women's conference.(Figure 5.7)

Looking across the socio-economic status; with increasing poverty, there is a trend showing less use of skilled birth attendance (delivery by medical doctor, nurse or midwife).(Figure 5.8)

Home and facility births were also assessed separately for practices during delivery, delivery complications and associated referrals.(Table 5.3b) There were notable differences in the maternal report of these indicators by place of delivery. When asked if birth attendants washed their hands, based on their perception and understanding of delivery practices, 70% of women who delivered at home said 'yes', whereas among women who delivered at a facility, the percentage increased to 88%. Use of gloves by a delivery assistant was reported by 96% of women who delivered in a facility while a similar practice was reported by only in 13% of women who delivered at home. Three percent of women who delivered at home and 63% of women who delivered in a facility said they took medication to control their bleeding. Minor differences were observed with respect to delivery on a clean surface.

Forty-five percent of women who gave birth at home said that they had a delivery complication and of those that delivered at a facility 62% reported a complication. The higher percentage of delivery complications reported among those who had a facility delivery could be due to the fact that when delivery becomes challenging in the home setting women tend to go to a health facility for assistance.

Among women who reported having a complication, 64% of women who delivered at home cited heavy bleeding as a type of complication and among facility births the same percentage said they had a prolonged labour. Among women with a complicated delivery who gave birth at home, only 15% were advised to go to a higher facility, and of those, 15% sought care.(Figure 5.9) Among those that did not go to a health facility, over half said that family members did not provide permission for them to go and a quarter said that the health facility was too far. Among women who reported a delivery complication during a facility birth, a much larger percentage were advised to go to a higher facility (61%), of which 93% accomplished their referral. The 7% that did not follow their advised referral, cited the associated expenses for not seeking care at a higher facility.

“

Among [women] that delivered at a health facility, half said that it was convenient... Twenty-three percent of women also said they delivered at a facility due to their attendance at a pregnant women’s conference.”

Figure 5.5 Place of delivery among all women, by region

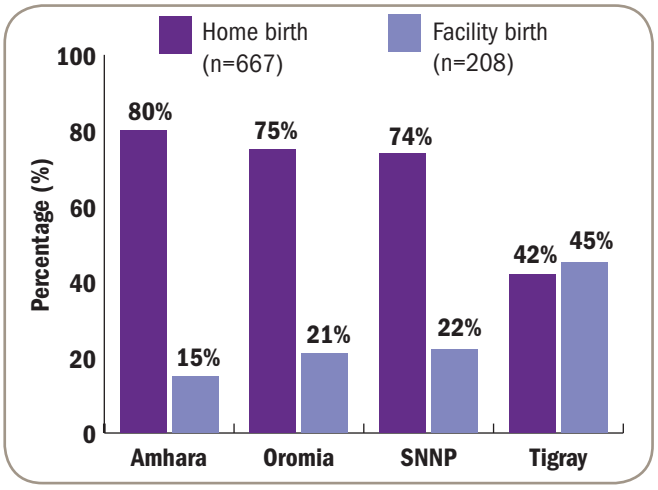


Figure 5.6 Multiple reasons for home delivery among the study women (n=660)

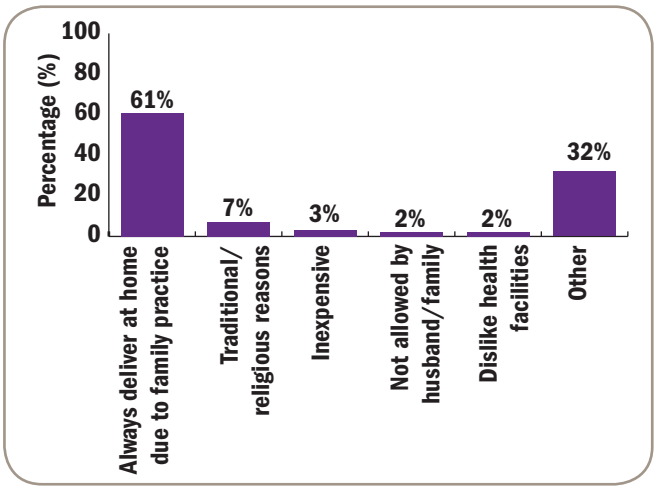


Figure 5.7 Multiple Reasons for health post, health centre or hospital delivery among women (n=208)

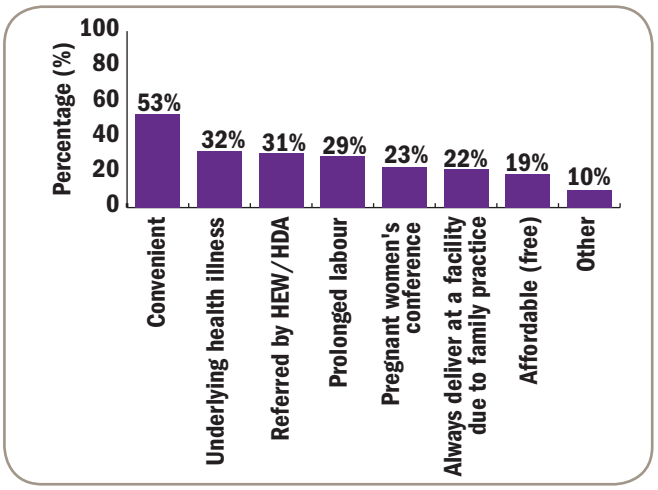


Figure 5.8 Coverage of skilled birth attendance by socio-economic status of household (N=915)

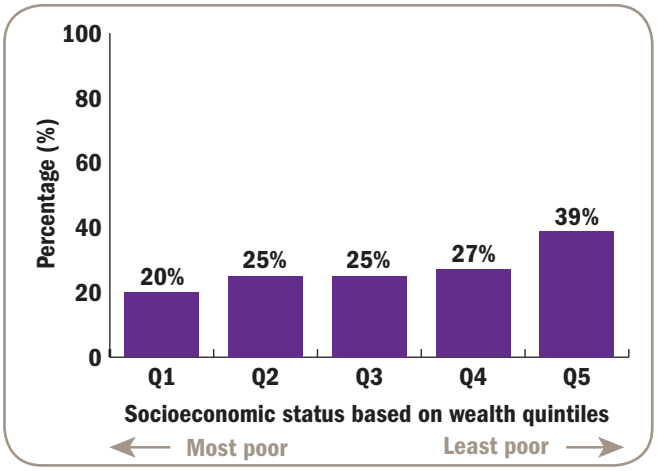


Figure 5.9 Referral history of women during birth, by place of delivery

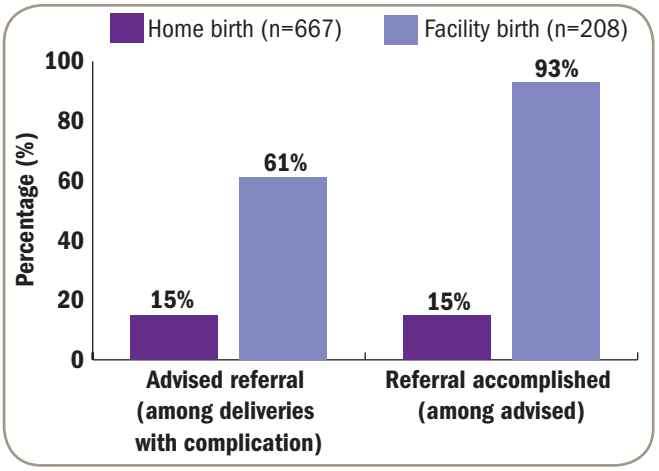


Table 5.3a Childbirth period: place of and assistant at delivery for women, by region

	Amhara		Oromia		SNNP		Tigray	
	n (%)	N	n (%)	N	n (%)	N	n (%)	N
Place of Delivery								
Home	174 (80)	219	282 (75)	374	169 (74)	229	42 (42)	100
Health post	2 (1)	219	8 (2)	374	6 (3)	229	11 (11)	100
Health centre	31 (14)	219	55 (15)	374	40 (18)	229	41 (41)	100
Hospital	2 (1)	219	23 (6)	374	11 (5)	229	5 (5)	100
Other	10 (5)	219	6 (2)	374	3 (1)	229	1 (1)	100
Primary assistance at delivery								
Doctor	5 (2)	215	24 (7)	354	7 (3)	221	7 (7)	95
Nurse/midwife	35 (16)	215	73 (21)	354	48 (22)	221	43 (45)	95
HEW	4 (2)	215	8 (2)	354	9 (4)	221	11 (12)	95
HDA leader	1 (1)	215	5 (1)	354	2 (1)	221	4 (4)	95
TBA	61 (28)	215	62 (18)	354	32 (15)	221	6 (6)	95
Relative/friend	107 (50)	215	173 (49)	354	105 (48)	221	22 (23)	95
Nobody	2 (1)	215	9 (3)	354	11 (5)	221	2 (2)	95

Table 5.3b Childbirth period: women's practices based on place of delivery, by region

	Amhara		Oromia		SNNP		Tigray	
	n (%)	N	n (%)	N	n (%)	N	n (%)	N
Home delivery								
Practices during delivery								
Birth attendant washed hands with soap before assisting	85 (58)	147	193 (82)	236	95 (63)	151	23 (64)	36
Birth attendant wore gloves	19 (11)	173	35 (13)	268	28 (17)	161	3 (8)	37
Delivered on clean surface	158 (92)	172	256 (94)	273	140 (84)	166	34 (92)	37
Use of misoprostol during delivery	1 (1)	171	14 (5)	272	5 (3)	158	1 (30)	36
Delivery complications								
Had delivery complications	56 (32)	173	164 (59)	278	65 (39)	165	14 (35)	40
Type of complications:								
Heavy bleeding	28 (16)	173	113 (41)	278	43 (26)	166	6 (15)	40
Labour lasting over 12 hours	21 (12)	173	29 (10)	279	28 (17)	166	2 (5)	40
Loss of consciousness	29 (17)	173	56 (21)	278	2 (1)	162	5 (13)	40
Premature labour	12 (7)	173	51 (18)	278	6 (4)	162	7 (18)	40
Foul discharge	6 (4)	173	21 (8)	278	2 (1)	161	0 (0)	40
Baby in abnormal position	2 (1)	173	18 (7)	278	5 (3)	166	2 (5)	41
Advised to go to higher facility	22 (13)	174	43 (16)	277	13 (8)	166	2 (5)	39
Referral accomplished	3 (13)	24	10 (21)	47	1 (8)	12	0 (0)	2
Primary reason for refusing referral:								
Remote facility	2 (10)	20	9 (25)	36	3 (27)	11	0 (0)	1
Expensive	0 (0)	21	5 (14)	36	0 (0)	11	0 (0)	1
Dislike going to a facility	6 (30)	20	0 (0)	36	1 (9)	11	0 (0)	1
No permission to go	12 (60)	20	22 (61)	36	7 (64)	11	1 (100)	1

Table 5.3b Childbirth period: women's practices based on place of delivery, by region, continued

	Amhara		Oromia		SNNP		Tigray	
	n (%)	N	n (%)	N	n (%)	N	n (%)	N
Facility delivery								
Practices during delivery								
Birth attendant washed hands with soap before assisting	11 (68)	17	50 (98)	51	29 (83)	35	36 (92)	39
Birth attendant wore gloves	31 (97)	32	77 (100)	77	44 (88)	50	45 (98)	46
Delivered on clean surface	31 (94)	33	77 (99)	78	46 (90)	51	44 (98)	46
Use of misoprostol during delivery	20 (71)	28	48 (75)	64	23 (47)	49	27 (60)	45
Length of facility stay in days								
Mean (SD)	0.5 (2)	33	1.4 (3)	76	2.8 (6)	51	1.3 (2)	42
Delivery complications								
Had delivery complication	20 (61)	33	56 (73)	77	35 (69)	51	17 (37)	46
Type of complications								
Heavy bleeding	11 (33)	33	33 (42)	78	19 (37)	51	7 (15)	46
Labour lasting over 12 hours	14 (42)	33	37 (47)	78	22 (45)	49	9 (20)	46
Loss of consciousness	12 (36)	33	35 (45)	78	1 (2)	49	4 (9)	46
Premature labour	1 (3)	33	12 (15)	78	5 (10)	49	1 (2)	46
Foul discharge	3 (9)	33	10 (13)	78	6 (12)	51	1 (2)	46
Baby in abnormal position	4 (12)	33	13 (17)	77	5 (10)	51	2 (4)	46
Advised referral	11 (33)	33	27 (35)	78	23 (45)	51	11 (24)	46
Primary reason for referral								
One or more danger signs	5 (46)	11	17 (63)	27	2 (8)	26	2 (17)	12
Lack of equipment	4 (36)	11	5 (19)	27	11 (42)	26	2 (17)	12
Lack of trained human resources	1 (9)	11	5 (19)	27	8 (31)	26	2 (17)	12
Other	1 (9)	11	0 (0)	27	5 (19)	26	6 (50)	12
Referral accomplished	11 (100)	11	23 (89)	26	22 (100)	22	11 (100)	11
Primary reason for refusing referral								
Expensive	0 (0)	0	2(100)	2	1 (100)	1	0(0)	0

5.5 Postpartum period (maternal assessment)

Women were asked about the care that they received during the postpartum period.(Table 5.4) Questions were asked separately about the postpartum and postnatal care seeking periods as the postpartum period was defined as the first six weeks, or 42 days after birth, whereas the postnatal period was defined as the first 28 days after birth. Fourteen percent of all women had one PPC visit, 6% had two and 3% said they had three visits. For all three PPC visits, the most common source of care was from a HEW followed by a nurse or a midwife. Thirty-seven percent of women said they had their first PPC visit at a health centre. A similar percentage of women reported having their first visit at home or at a health post (28% vs. 27%). For the second and third visit, a higher percentage of women reported having a PPC visit at a health post.

Compared with women from the most poor households, coverage of at least one PPC visit (at home, health post, health centre or hospital) was twice as much among women residing in the least poor households (10% vs. 20%). (Figure 5.10)

Figure 5.10 Coverage of PPC visit within six weeks of giving birth, by socio-economic status of household (N=921)

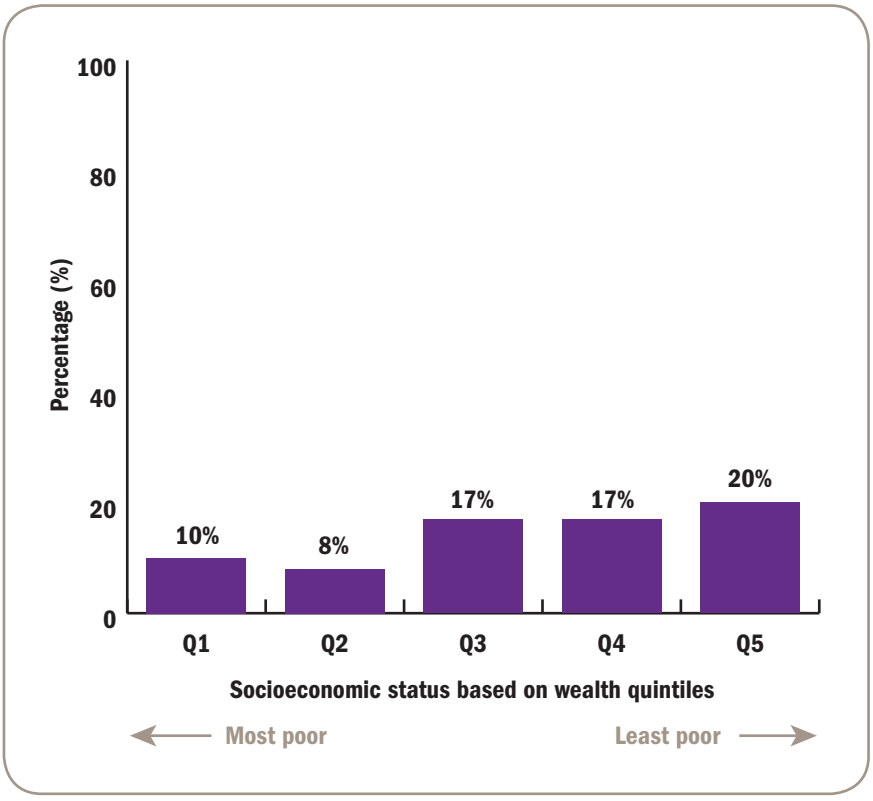


Table 5.4 Postpartum period: postpartum care provider and timing of visits for women, by region

	Amhara		Oromia		SNNP		Tigray	
	n (%)	N	n (%)	N	n (%)	N	n (%)	N
PPC within six weeks of delivery								
Had 1st PPC visit	**15 (7)**	**219**	**53 (14)**	**374**	**38 (17)**	**228**	**25 (25)**	**100**
Care provider for 1st PPC visit								
Doctor	0 (0)	13	5 (10)	51	2 (5)	38	0 (0)	23
Nurse/midwife	4 (31)	13	22 (43)	51	10 (26)	38	9 (39)	23
HEW	9 (69)	13	23 (45)	51	25 (66)	38	14 (61)	23
HDA leader*	0 (0)	13	1 (2)	51	1 (3)	38	0 (0)	23
Place of 1st PPC visit								
Home	3 (20)	15	13(25)	53	16 (42)	38	5 (20)	25
Health post	6 (40)	15	12 (23)	53	9 (24)	38	8 (32)	25
Health centre	6 (40)	15	21 (40)	53	10 (26)	38	12 (48)	25
Hospital	0 (0)	15	4 (8)	53	3 (8)	38	0 (0)	25
Other	0 (0)		3 (6)	53	0 (0)	38	0 (0)	25
Had 2nd PPC visit	**5 (2)**	**218**	**18 (5)**	**370**	**21 (9)**	**228**	**13 (13)**	**100**
Care provider for 2nd PPC visit								
Doctor	0 (0)	5	4 (24)	17	0 (0)	21	0 (0)	12
Nurse/midwife	1 (20)	5	7 (41)	17	2 (10	21	6 (50)	12
Health officer	0(0)	5	0 (0)	17	1 (5)	21	0(0)	12
HEW	4 (80)	5	6 (35)	17	18 (86)	21	6 (50)	12
Place of 2nd PPC visit								
Home	0 (0)	5	3 (17)	18	8 (38)	21	1 (8)	13
Health post	5(100)	5	4 (22)	18	10 (48)	21	6 (46)	13
Health centre	0 (0)	5	7 (39)	18	2 (10)	21	6 (46)	13
Hospital	0 (0)	5	3 (17)	18	1 (5)	21	0 (0)	13
Other	0 (0)	5	1 (6)	18	0 (0)	21	0 (0)	13
Had 3rd PPC visit	**0 (0)**	**209**	**12 (4)**	**343**	**7 (3)**	**211**	**8 (9)**	**88**
Care provider for the 3rd PPC visit								
Doctor	0 (0)	0	1 (9)	11	0 (0)	7	0 (0)	8
Nurse/midwife	0 (0)	0	4 (36)	11	2 (29)	7	5 (63)	8
HEW	0 (0)	0	6 (55)	11	5 (71)	7	3 (38)	8
Place of 3rd PPC visit								
Home	0 (0)	0	2 (17)	12	2 (29)	7	1 (13)	8
Health post	0 (0)	0	5(42)	12	3 (43)	7	3 (38)	8
Health centre	0 (0)	0	4 (33)	12	2 (29)	7	4 (50)	8
Hospital	0 (0)	0	1 (8)	13	0 (0)	7	0 (0)	8

*HDA leaders provide counselling and information

5.6 Neonatal care (newborn assessment)

Mothers were asked about immediate newborn care.(Table 5.5) Nineteen percent of newborns had received a PNC visit within the first 28 days, 14% within seven days and 5% within 24 hours.(Figure 5.11)

Among newborns that had a PNC check, a large percentage (41%) had their first PNC check at home, followed by a health centre (33%) and health post (18%). Over half of PNC visits were provided by a HEW and one-third were conducted by a nurse.(Figure 5.12)

Immediate newborn care practices were assessed separately for home and facility births. Breathing problems were identified in 9% of home births and 16% of facility births. Seventy-three percent of those delivered in a facility were weighed at birth, while among home deliveries only 3% were weighed. TTC eye ointment was applied in 2% of home deliveries and 40% of facility deliveries.

The use of a clean instrument for cutting the cord and tying the cord during home births was reported by 94% and 58% of mothers respectively, based on their perceptions and understanding of newborn care practices. Seventy-three percent of all newborns received dry cord care. Among home delivered newborns who had something applied to the cord, 87% had butter applied and 5% had an ointment applied. Only 11% of mothers who delivered in a health facility reported application of something on the cord. Among these, 31% reported the application of butter and 23% reported the application of an ointment.

Over 80% of mothers reported that their newborn was dried and wrapped in less than 30 minutes after delivery and the proportions were similar for both home and facility births. Among home deliveries, only 36% of newborns were not bathed until a day after childbirth, which was much lower than the figure for facility births (79%). Initiation of breastfeeding within an hour of birth was similar among home and facility births (61% and 65%) and exclusive breastfeeding for the first 28 days was over 90% in both groups.

Photo: Using the newborn's foot size as a proxy for birth weight
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Figure 5.11 Coverage of PNC visits during the neonatal period (first 28 days), by region

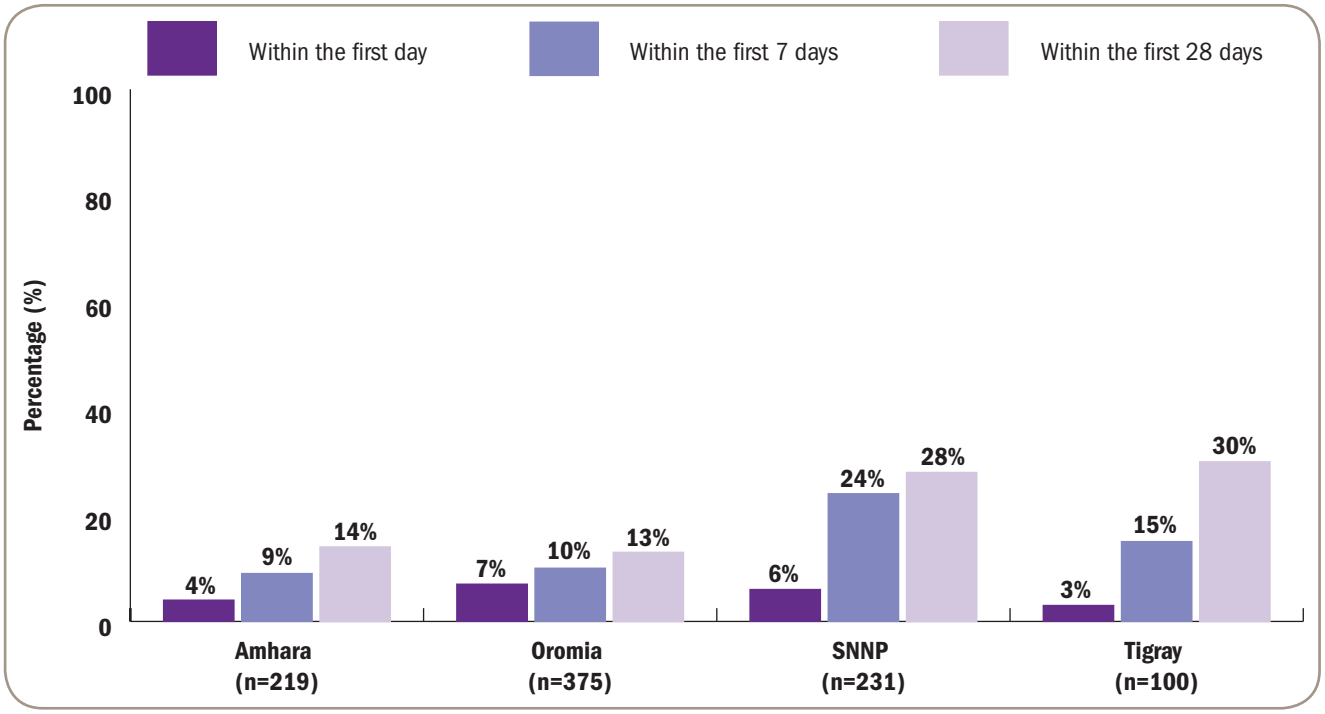
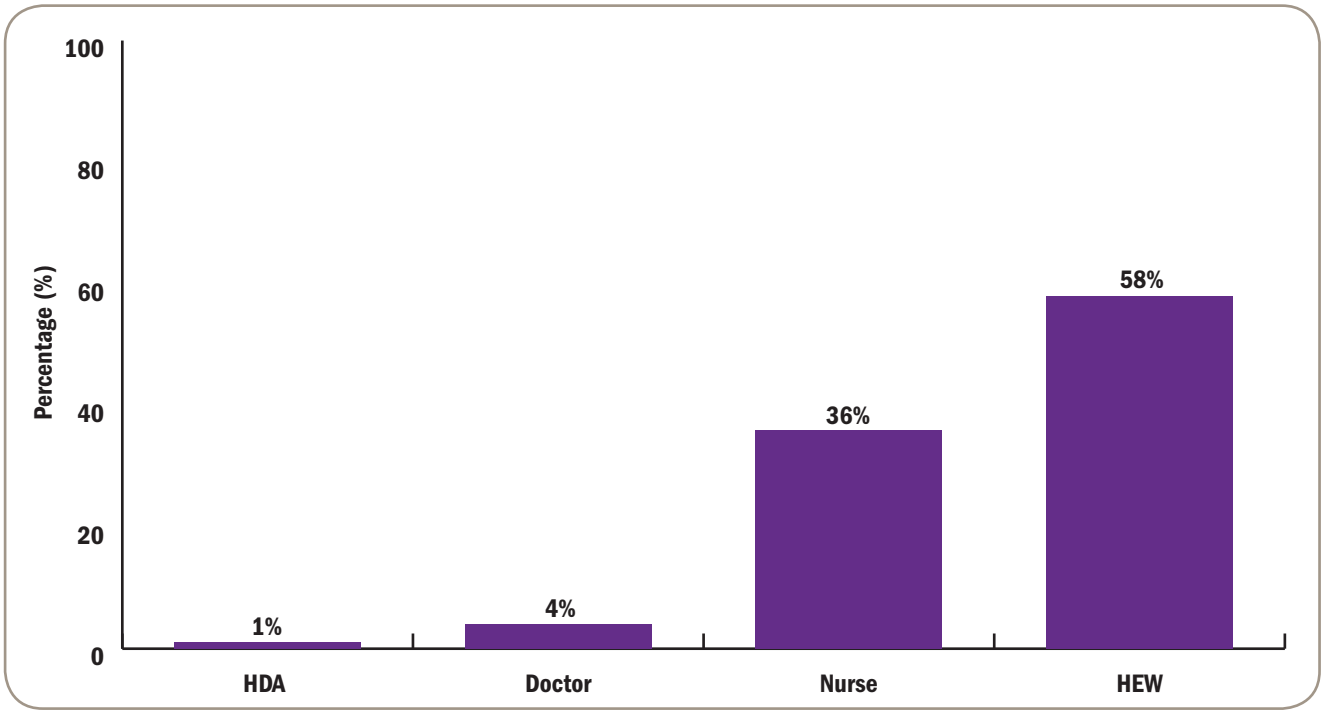


Figure 5.12 Provider of first postnatal check (n=144)*



* 1% who said they did not know who provided the PNC care are not included in Figure 5.12.

Table 5.5 Immediate newborn care provided at home and facility deliveries, by region

	Amhara		Oromia		SNNP		Tigray	
	n (%)	N	n (%)	N	n (%)	N	n (%)	N
Any postnatal visit								
Within the first day	9 (4)	219	25 (7)	375	13 (6)	231	3 (3)	100
Within the first 7 days	19 (9)	219	36 (10)	375	55 (24)	231	15 (15)	100
Within the first 28 days	31 (14)	219	47 (13)	375	65 (28)	231	30 (30)	100
Provider of the 1st PNC check within the first 28 days								
Doctor	0 (0)	31	4 (9)	44	1 (3)	39	1 (3)	30
Nurse/midwife	6 (19)	31	24 (55)	44	7 (18)	39	12 (40)	30
Health officer/assistant	0 (0)	31	1 (2)	44	0 (0)	39	0 (0)	30
HEW	21 (68)	31	13 (30)	44	31 (79)	39	17 (57)	30
HDA leader*	0	31	2 (5)	44	0 (0)	39	0 (0)	30
Don't know	4 (13)	31	0 (0)	44	0 (0)	39	0 (0)	30
Place of the 1st PNC check within the first 28 days								
Home	14 (45)	31	15 (33)	46	22 (56)	39	9 (30)	30
Health post	7 (23)	31	1 (2)	46	9 (23)	39	10 (33)	30
Health centre	10 (32)	31	21 (46)	46	8 (21)	39	9 (30)	30
Hospital	0 (0)	31	6 (13)	46	0 (0)	39	2 (7)	30
Other	0 (0)	31	3 (7)	46	0 (0)	39	0 (0)	30
Home birth								
Birth asphyxia: Breathing difficulty	16 (9)	171	33 (12)	282	8 (5)	163	2 (5)	38
Weighed at birth	2 (1)	174	6 (2)	279	4 (2)	163	6 (15)	39
TTC eye ointment	1 (1)	172	3 (1)	281	7 (4)	160	3 (8)	39
Immediate cord care in home delivery								
Clean instrument to cut cord	166 (96)	173	260 (92)	282	160 (95)	169	36 (90)	40
Clean instrument to tie cord	84 (49)	173	202 (72)	281	70 (41)	169	29 (73)	40
Immediate application to cord								
Immediately applied something	55 (32)	172	101 (36)	281	37 (23)	160	18 (49)	37
Applied:								
Butter	48 (86)	56	95 (94)	101	31 (79)	39	18 (86)	21
Ash	0 (0)	52	3 (3)	100	1 (3)	39	0 (0)	21
Ointment	2 (4)	52	1 (1)	100	3 (8)	39	4 (19)	21
Oil	0 (0)	52	1 (1)	100	0 (0)	39	0 (0.0)	21
Cold water	2 (4)	52	3 (3)	100	1 (3)	39	0 (0)	21
Other	0 (0)	48	3 (3)	95	1 (3)	37	0 (0)	18
Hypothermia								
Newborn dried <30 mins after birth	74 (80)	93	114 (80)	142	78 (74)	106	28 (93)	30
Newborn wrapped <30 mins after birth	85 (88)	97	138 (90)	154	97 (75)	130	29 (100)	29
Timing of the first bath:								
In the first hour	82 (47)	174	127 (46)	278	63 (40)	159	14 (37)	38
After one hour	26 (15)	174	51 (18)	278	44 (28)	159	10 (26)	38
After one day	66 (38)	174	100 (36)	278	52 (33)	159	14 (37)	38
Breastfeeding								
Breastfeeding initiation timing:								
In the first hour	65 (38)	173	203 (74)	274	105 (65)	161	23 (58)	40
After one hour, but during the first day	61 (35)	173	57 (21)	274	55 (34)	161	12 (30)	40
After the first day	47 (27)	173	14 (5)	274	1 (1)	161	5 (12)	40
Exclusive breastfeeding for first 28 days	143 (83)	173	258 (93)	277	161 (96)	167	35 (90)	39

Table 5.5 Immediate newborn care provided at home and facility deliveries, by region, continued

	Amhara		Oromia		SNNP		Tigray	
	n (%)	N	n (%)	N	n (%)	N	n (%)	N
Facility birth								
Birth asphyxia: Breathing difficulty	3 (9)	32	22(28)	78	7 (15)	47	1 (2)	44
Weighed at birth	14 (48)	29	45 (74)	61	33 (77)	43	36 (86)	42
TTC eye ointment	10 (34)	29	12 (26)	46	21 (53)	40	20 (48)	42
Immediate cord care								
Clean instrument to cut cord	20 (63)	32	53 (68)	78	32 (63)	51	40 (89)	45
Clean instrument to tie cord	17 (53)	32	38 (49)	78	38 (75)	51	36 (80)	45
Immediate application to cord								
Immediately applied something	2 (6)	33	8 (11)	75	3 (7)	46	9 (20)	45
Applied:								
Butter	2 (67)	3	0 (0)	10	1 (25)	4	5 (56)	9
Ointment	0 (0)	3	5 (50)	10	0 (0)	4	1 (11)	9
Other	0 (0)	3	2 (20)	10	1 (25)	4	2 (25)	8
Hypothermia								
Newborn dried <30 mins after birth	11 (79)	14	24 (77)	31	18 (82)	22	28 (90)	31
Newborn wrapped <30 mins after birth	16 (89)	18	34 (92)	37	20 (69)	29	29 (91)	32
Timing of the first bath:								
In the first hour	4 (12)	33	4 (5)	77	2 (4)	45	8 (18)	45
After one hour	7 (21)	33	8 (10)	77	8 (18)	45	2 (4)	45
After one day	22 (67)	33	65 (84)	77	35 (78)	45	35 (78)	45
Breastfeeding								
Breastfeeding initiation timing:								
In the first hour	18 (55)	33	57 (74)	77	35 (70)	50	23 (51)	45
After one hour, but during the first day	11 (33)	33	17 (22)	77	14 (28)	50	17 (38)	45
After the first day	4 (12)	33	3 (4)	77	1 (2)	50	5 (11)	45
Exclusive breastfeeding in the neonatal period	30 (91)	33	76 (97)	78	50 (98)	51	45 (100)	45

*HDA leaders provide counselling and information

Photos: Antibiotic samples for training Health Extension Workers
© Neil Lensink

5.7 Management of neonatal illness

Information on history of illness during the first 28 days of life was collected from mothers. (Table 5.6) Twelve percent reported that their newborns had symptoms of an illness and among these 41% sought formal medical care. Among all newborns, 5% had symptoms of severe neonatal infection (difficulty breathing, chest in-drawing and/or convulsions) and the distribution by regions is shown in Figure 5.13. Twenty-eight percent of newborns with severe neonatal infection received treatment with an antibiotic regimen at a health centre or hospital.

Of the interviewed mothers, 18 (2%) reported that their newborns had died in the first 28 days of life. Of the 18 neonatal deaths only 25% had sought formal medical care. (Figure 5.14)

Table 5.6 Management of neonatal illness, by region

	Amhara		Oromia		SNNP		Tigray	
	n (%)	N	n (%)	N	n (%)	N	n (%)	N
Neonatal illness								
History of sickness	28 (13)	216	47 (14)	334	20 (10)	205	9 (10)	91
Formal health care seeking among ill neonates	13 (43)	30	20 (41)	49	7 (33)	21	5 (56)	9
Neonatal sepsis								
Newborns with severe neonatal infection	11 (39)	28	18 (38)	47	5 (25)	20	3 (33)	9
Antibiotic care received among neonatal sepsis	4 (33)	12	4 (21)	19	2 (40)	5	1 (33)	3

Figure 5.13 Newborns with severe neonatal infection based on one or more symptoms, by region

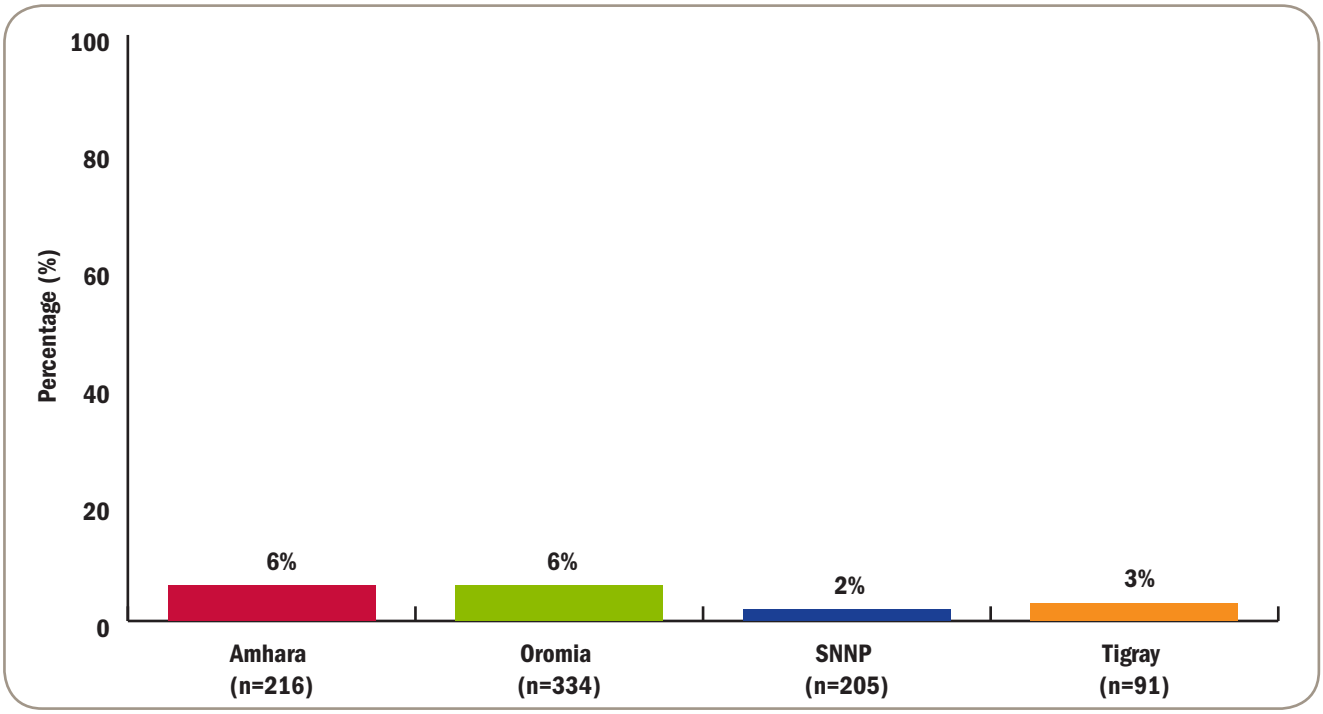
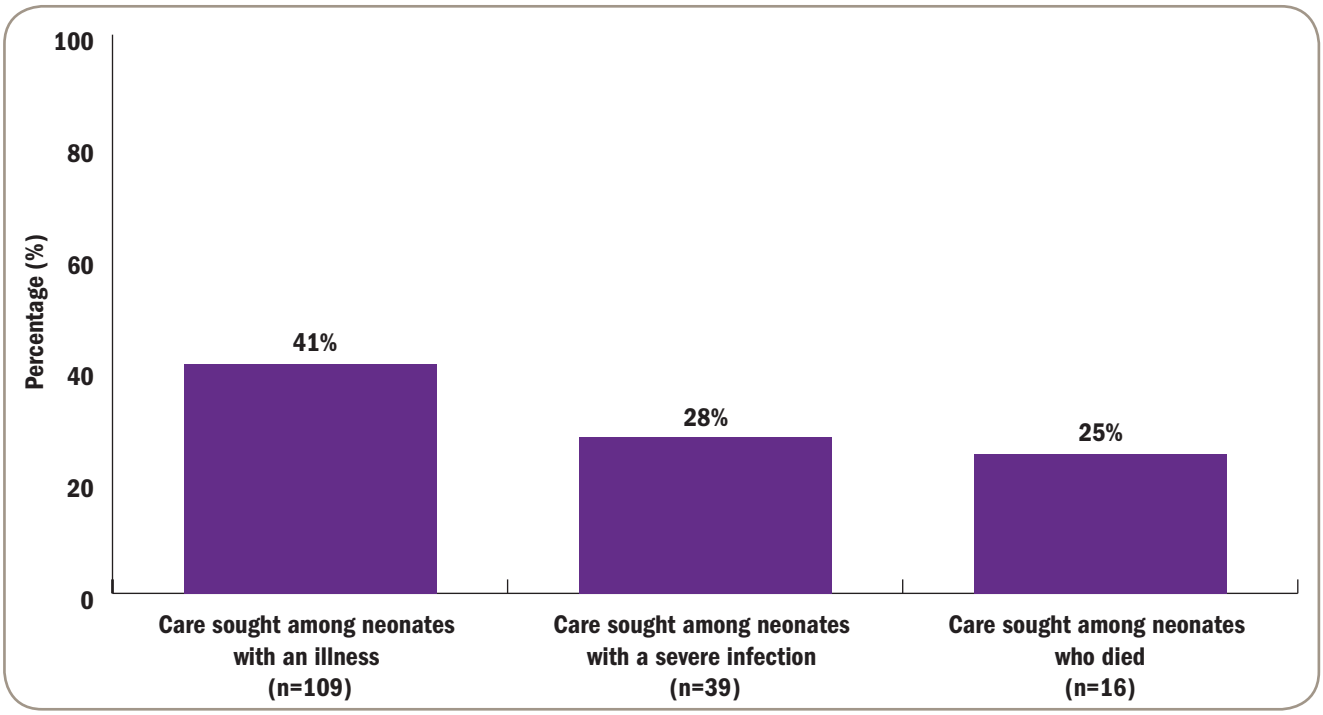


Figure 5.14 Formal medical care sought for sick newborns in the first 28 days of life



6. Discussion

Photo above: Girl near Sodo, Ethiopia
© Dr Neil Spicer

This report presents the findings from the CBNC baseline survey that was conducted from October-November of 2013.

The survey was completed on time, within six months of the request from the Federal Ministry of Health and reached 206 health centres, health posts and HEWs, 605 HDA leaders and 10,295 households. The health system status and readiness to provide the CBNC programme has been described in detail. At household level, the coverage level of MNH interventions reflecting the programmatic aspects of CBNC has been presented.

With respect to the health system, health centres on average had two midwives and seven nurses. PHCUs had a relative shortage of HEWs as on average a health centre had six satellite health posts and 10 HEWs. Less than half of health centres had motorised transport, indicating the limited capacity for transporting pregnant women to health centres for delivery. Many of the health centres and health posts did not have an adequate supply of piped water and electricity. Almost all health centres had a functional fridge.

Over 80% of both health centres and health posts had IMNCI and iCCM registers, respectively. However, there was low and variable availability of job aids and forms, which has implications for the CBNC programme. For example, the chart booklet which is used for assessing, classifying and treating a sick newborn or child was available in 66% of health posts. As mentioned earlier, chart booklets might not have been available in a third of the surveyed health posts due to the interviewed HEW not having received iCCM training, attrition of trained HEWs, or the booklet not being physically present at the health post on the day of the survey. Furthermore, the family health card, a MNH-related BCC tool used by HEWs and HDA leaders to educate pregnant women and their families about important MNH messages, was available in 68% of health posts.

An assessment of the service utilisation gap of PHCUs showed that of the expected pregnancies, a significant proportion of pregnant women are not identified by the health system and do not get ANC care. The largest gap was service utilisation for optimal ANC and PNC visits. Of the expected pregnancies and deliveries, a large majority did not receive four ANC and four PNC visits, respectively. These figures are based on records of service utilisation against targets set by the PHCUs, and are used to assess health centre and health post performance. The observed gaps in service utilisation could be due to high target setting, poor record keeping, incomplete transfer of data from health posts to health centre, and/or lack of service utilisation.

With respect to the health workforce, a detailed assessment of HEWs' training and unprompted knowledge across the continuum of care has identified some of their knowledge gaps. The CBNC programme can focus on training HEWs and HDA leaders based on the gaps that have been identified. For example, only one-third of HEWs cited an MNH-related integrated refresher training in the twelve months preceding the survey.

Almost all PHCUs had an established HDA system, a promising fact given the role HDA leaders play in the CBNC programme. Furthermore, HEWs interacted with HDA leaders regularly and provided them with training on different components across the continuum of care. However, only half the HEWs had provided training on

how to use the family health card. In order for HDA leaders to undertake health promotion and counselling activities that improve MNH knowledge and health seeking behaviour, supplies of the family health card and training on its effective use are necessary.

For the purpose of the household survey discussion, we have made comparisons of a few indicators from the CBNC baseline survey with two data sets that have different sources, timeframe and collection methods: 2011 Ethiopia DHS (population-based survey on services provided in the five years before the survey) and 2011/2012 HMIS data (facility-based routine data collection on services provided in the specified year). With the recommendation from the Technical Working Group, comparisons of the CBNC baseline survey results were made with both Ethiopia DHS and HMIS data to provide a comprehensive understanding of the findings.

With respect to communities, 69% of women reported having one ANC visit, which lies in-between the 2011 Ethiopia DHS (43%) and 2011/2012 HMIS (89%) data. In this survey 39% of women reported having the recommended four ANC visits, which is twice the coverage level reported by 2011 Ethiopia DHS (19%). Among women who had an ANC visit, the majority received care after the first trimester and about one-third never sought care at a health centre or hospital. Twenty-three percent of women who had an ANC visit had attended a pregnant women's conference, which effectively communicated the importance of institutional delivery and birth preparedness across all four regions. However, PNC and newborn care were not consistently addressed. Health posts are the primary location where pregnant women's conferences are held. Some conferences were also held at health centres. Further exploration is needed to assess if meetings held at health centres are as effective as meetings held at health posts. A pregnant women's conference is a major opportunity for community awareness and mobilisation. It has the potential to be a platform where important topics across the continuum of care are discussed, however currently it does not adequately address newborn care seeking behaviour.

> "Almost all PHCUs had an established HDA system, a promising fact given the role HDA leaders play in the CBNC programme."

More can be done by HEWs and HDA leaders in referring pregnant women to deliver in facilities. In this survey 23% reported delivering in a health facility, which is similar to data from HMIS (20%) and more than double the coverage levels reported in the 2011 Ethiopia DHS (10%). Births are still taking place at health posts and some home births are being attended by HEWs and HDA leaders. Although other reasons were cited for home delivery, the majority preferred home births out of habit. This indicates that there is a need to address training gaps to ensure that HEWs promote and facilitate facility birth.

Overall, referrals by the birth attendant for complicated deliveries were low. Furthermore, among women who delivered at home and were referred for a complication, few were able to reach the next level of health facility.

Due to the operational definitions of PPC (six weeks) and PNC (28 days), care seeking behaviour for these two periods were assessed separately. Overall very few women received PPC (14%). This figure falls between 2011 Ethiopia DHS (8.5%) and 2011/2012 HMIS data (45%), though it is relatively closer to the former. Low coverage of PPC in this survey is particularly striking given the high percentage of women who reported a delivery complication, very few received specialised care (e.g. PPC visit with a medical doctor).

With respect to immediate newborn care, very few newborns had received PNC in the first 28 days after birth. As expected, there were also notable differences in newborn care practices by place of delivery. Fewer cases of breathing problems were reported by mothers who delivered at home, indicating that birth asphyxia is unlikely to be identified among home births. With respect to cord care, the government policy of dry cord care is showing promising results as 73% of all newborns had nothing applied to their cord. This was more evident among facility births where dry cord care was provided to 89% of newborns. With CBNC, the Ministry of Health is recommending cord care with chlorhexidine. The CBNC programme needs to ensure that changing the dry cord care recommendation to care with chlorhexidine does not increase harmful traditional practices (e.g. application of butter, oil or ash to the cord).

With respect to keeping newborns warm, facility births have succeeded in delaying bathing until the second day of life. However, for a majority of home births bathing took place on the same day as delivery. Timing of breastfeeding initiation and exclusive breastfeeding during the PNC period (28 days) were very similar by place of delivery.

Minimal care was sought for newborns with illness and severe newborn infection. Among neonates that died, the percentage where care was sought is remarkably low. This has major implications for the CBNC programme. HEWs and HDA leaders need to have access to newborns so they can identify the danger signs and ensure that sick newborns receive and complete their treatment.

Photo: Health post, Ethiopia © Neil Lensink

Limitations

There are a number of limitations in this survey. The sample size calculations for the household survey are based on detecting a differential change over time between intervention and comparison areas in the coverage of key interventions. Based on a recommendation made by the Technical Working Group after completion of the survey, results have been presented by region. However, the sample size is not sufficient to make statistical analysis for regional comparisons nor is the sample size sufficient to estimate newborn mortality, which requires a very large sample size to present the results with reasonable power. A sample size of such a magnitude was beyond the resources that were available for this survey.

Comparison areas were selected from zones where CBNC roll-out is planned to be as late as possible based on the need to build iCCM, HDA, HEW and PHCU platforms in these zones. This has implications on the comparability of these zones with the intervention zones in relation to certain indicators.

With respect to the facility survey, there was limited consistency and reliability in the data that were extracted from facility records and registers. Data of reasonable quality were available on equipment, supplies, drugs, administrative forms and job aids, however the quality of data on

birth weight, preterm births and care, sick newborn treatment, and asphyxia were not possible to ascertain with reasonable validity and reliability. Better data quality of newborn care at the health post and health centre level are needed for monitoring the CBNC programme.

In addition, women were asked to recall details of births that happened 3-15 months previously and as a result there may well be a greater recall bias associated with births that were longer ago. Furthermore, the relatively low education level of women in the household survey might affect the accuracy with which they can recall drugs and medical interventions provided to them and their newborns. However, these potential biases should not differ by region, or between intervention and comparison areas.

HDA leaders were included in the household survey, which might result in the overestimation of health behaviours as compared with the general population. However, given that every fifth woman is an HDA leader, one can argue that they are part of the general population.

This survey was conducted in many languages across a wide geographic area, which might contribute to variations in the responses. However, every effort was made to minimize such differences (e.g. pre-testing questionnaires in all three languages).

Conclusion and recommendations

This survey gives regional level results that provide a benchmark of the health system and care seeking behaviours of women who had a live birth in the 3-15 months prior to the survey being conducted. Below we provide recommendations for the overall improvement of CBNC implementation. However, it is strongly recommended that the regional level results presented in Chapters 4 and 5 are thoroughly reviewed to identify region specific needs that can guide the design of CBNC-related health promotion and implementation activities.

Based on the discussion presented, below are the overall key recommendations for the CBNC Phase 1 areas:

- Increase the availability of job aids specifically associated with newborn illness diagnosis and management
- Increase coverage of training on the use of the family health card by HDA leaders to promote pregnancy care and newborn health promotion
- Focus training of HEWs and HDA leaders on their role definition in promoting facility birth
- In addition to promoting facility delivery, strengthen the referral system for home births to meet the needs of delivery complications and newborn illnesses
- Provide carefully crafted messages to accompany the introduction of cord care with chlorhexidine
- Increase health promotion activities that can improve the uptake of postpartum and postnatal care (e.g. using the opportunity of pregnant women's conferences to promote PNC and care seeking for sick newborns)
- Enhance supervisory support to ensure the consistent availability of drugs at health post level
- Strengthen record keeping, particularly as it relates to having consistent and standardised data on newborn care

Next steps in the evaluation plan

The CBNC evaluation includes a qualitative study. The qualitative inquiry will be based on the findings of the baseline survey and will try to understand the reasons and processes behind some of the key findings at HEW, HDA and household levels. A midline survey is also planned six months after CBNC implementation to examine supply-side factors at PHCU level including health centres, health posts, HEWs and the HDA. Lastly, an end-line survey will take place approximately a year-and-half after CBNC implementation to assess before-and-after coverage surveys of the critical MNH interventions in the intervention and comparison areas.

Annexes

Annex I
Brief summary of CBNC survey by intervention and comparison areas

In this section we present a brief introduction and summary to the CBNC survey by intervention and comparison areas. This is followed by Annexes II and III, which provide results of the healthy system and household level findings respectively. For ease of referencing, tables and figures in Annexes II and III are numbered in the same way as those showing regional level analysis in the main report. Figures that represent overall totals are not repeated in the Annexes.

Implementation of CBNC in the Phase 1 intervention zones started after the baseline survey was conducted in Eastern Tigray, East Gojam, North Shewa, East Shewa, Gurage, Wolayita and Sidama. The five comparison zones selected were Southern Tigray, North Gondar, East Wellega, Ilu Aba Bora and South Omo. Comparison zones were selected based on the Ministry of Health's recommendation, with the understanding that CBNC implementation in these zones is likely to take place after the end-line survey.

Overall, the sampling procedure resulted in a total of 209 (104 intervention and 105 comparison) PHCUs. In each PHCU a health centre, a satellite health post, three HDA leaders and 50 households in the catchment area of the selected health post (for a total of 10,450 households) were surveyed. The proposed sample size of 10,450 households will allow us to detect differences in coverage rates of at least 10 percentage points in key interventions, including ANC, skilled birth attendance and PNC, with 80% power, 5% significance and assuming a design effect of 1.4 and 90% completeness.

Confidence intervals given in the intervention comparison area tables in Annexes II and III have been adjusted for clustering at PHCU level. Rather than population based estimates (which require weighted summaries) the results focus on PHCU clusters, the basic implementation unit of the CBNC programme.

In Annex II we present results that explore the current status of the health system. The survey comprised of 206 out of the 209 sampled PHCUs. More specifically, it included 104 intervention and 102 comparison area health centres, health posts and HEWs. Furthermore the study included 308 HDA leaders from intervention areas and 297 from comparison areas (making a total of 605 HDA leaders).

In health centres and health posts, the survey assessed facilities' service status and readiness to provide MNH services with a focus on CBNC programmatic aspects. For HEWs and HDA leaders, we present data on training, knowledge and practice in MNH services.

In Annex III we present finding from the household survey. Of the 10,450 households that were sampled, 10,295 household heads were available and agreed to participate in this study. There were a total of 10,999 women of reproductive age (15-49 years old) residing in these households, of which 9,999 (91%) were interviewed regarding their fertility history in the previous two years. Among the 9,999 women, 925 (451 from intervention areas and 474 from comparison areas) had had a live birth in the 12 months preceding the survey and were asked questions about that birth. Three call backs were made to interview any absent household heads and all resident women aged 15-49.

All respondents provided informed, voluntary written consent to be interviewed.

Below are some key findings from intervention and comparison areas from the health centre, health post, HEWs, HDA leaders and household surveys. Detailed information

regarding each of the collected indicators is available in the tables and figures presented in Annexes II and III.

Health system survey

For health centres and health posts, the survey assessed facilities' service status and readiness to provide MNH services with a focus on CBNC programmatic aspects. For HEWs and HDA leaders, we present data on training, knowledge and practice in MNH services.

Health centres and health posts in intervention and comparison areas were similar in terms of facility description (e.g. electricity). However there were statistically significant differences with respect to the availability of MNCH related job aids and administrative forms at health centre and health post levels (e.g. family health cards). There were also significant differences in the availability of equipment such as a clinical thermometer (89% [95% CI 81,93] vs. 64% [95% CI 54,73]). A higher percentage of health posts in intervention areas reported having a chart booklet (79% [95% CI 70,86] vs. 52% [95% CI 42,62]. Though health centres were similar with respect to the availability of medicines and vaccines, there were significant differences between health posts in intervention and comparison areas with respect to the availability of iron, TTC eye ointment and Vitamin A. Similar percentages of intervention and comparison area health centres and health posts reported routinely offering MNH services.

HEWs and HDA leaders in intervention and comparison areas were similar in mean age, years of education and employment. Among HDA leaders, a significantly higher proportion in intervention areas had an unprompted knowledge on health promotion across the continuum of care. In general, more HEWs in comparison areas reported receiving training across the continuum of care in the previous 12 months. For example, iCCM training in the last 12 months was reported by 33% (95% CI 24,42) of HEWs in intervention areas and 71% (95% CI 62,79) in comparison areas. The two areas were similar with respect to HEWs' and HDA leaders' linkages, supervision visits received by HEWs, and HEWs' unprompted knowledge of health provision across the continuum of care.

Household survey

At the household level, intervention and comparison areas were very similar in key indicators across the continuum of care. For the ANC period, a similar percentage of women in both areas reported having at least one ANC visit (70% [95% CI 65,74] vs. 68% [95% CI 64,72]); four or more visits (41% [95% CI 37,46] vs. 37% [95% CI 32,41]); and a visit in the first trimester (29% [95% CI 23,35] vs. 24% [95% CI 19,28]).

There was also no statistically significant difference between intervention and comparison areas with respect to home delivery (69% [95% CI 65,74] vs. 75% [95% CI 71,79]). However, a significantly higher percentage of women in intervention areas reported delivering at a health centre (22% [95% CI 19,27] vs. 14% [11,17]).

Indicators for the management of hypothermia, such as the timing of newborn drying, wrapping and bathing, were not significantly different between intervention and comparison areas. Initiation of breastfeeding was also similar, with a little over 60% (62% [95% CI 58,67] vs. 61% [95% CI 56,65]) of women in intervention and comparison areas reporting that they breastfed their newborn in the first hour after birth. Twenty-two percent [95% CI 19,27] of women in intervention areas and 15% [95% CI 12,19] in comparison areas reported that their newborn was weighed.

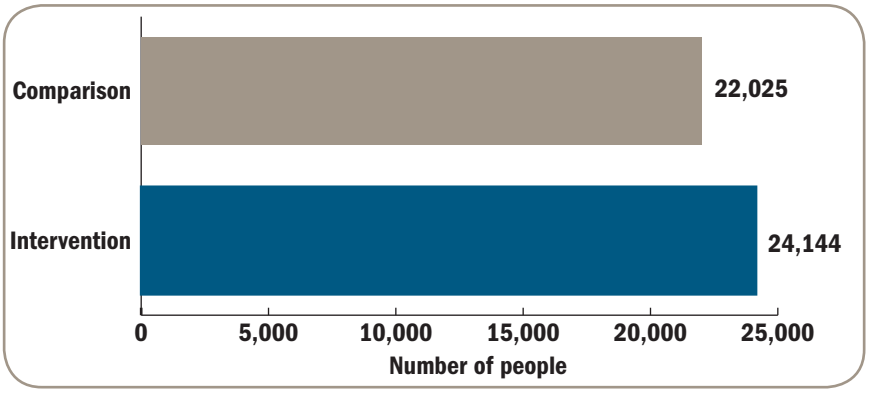
PNC within the first day was low in both intervention and comparison areas (3% [95% CI 2,6] vs. 7% [95% CI 5,11]), with a little under 20% in each group reporting PNC within the first 28 days. Burden of neonatal illness was similar in intervention and comparison areas (11% [95% CI 8,15] vs. 13% [95% CI 11,17]). Among those with a reported illness, symptoms for severe neonatal infection were reported in 32% [95% CI 19, 48] of newborns in intervention areas and 38% [95% CI 28,50] of newborns in comparison areas.

Overall, although there were some significant differences at health facility level, intervention and comparison areas were similar with respect to the majority of indicators for HEWs and HDA leaders. Intervention and comparison areas were also similar at the household level, for key indicators across the continuum of care. These findings indicate that generally, the intervention and comparison areas are similar at both health system and household levels, making the two arms suitable for the evaluation of the CBNC Phase 1 programme.

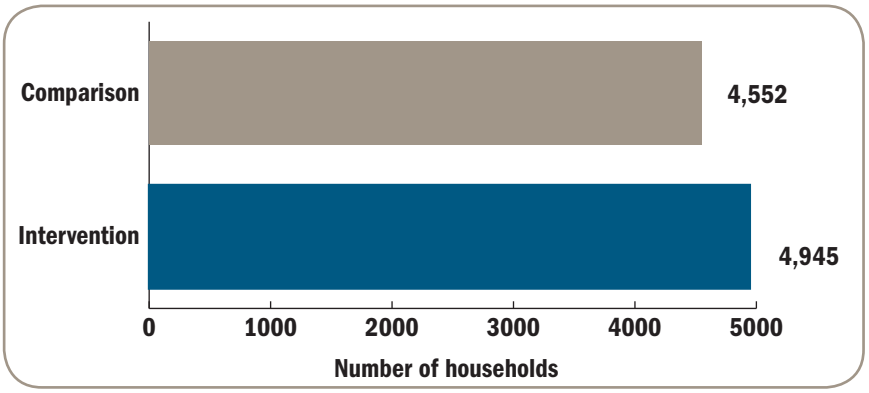
Annex II
Health facility survey by intervention-comparison areas

Annex 4.1 Health Centre

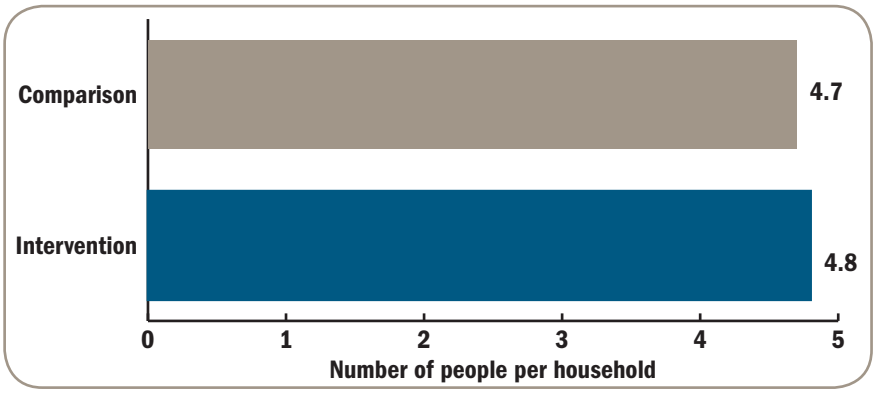
Annex Figure 4.1 Average health centre catchment population, by intervention and comparison areas (N=205)



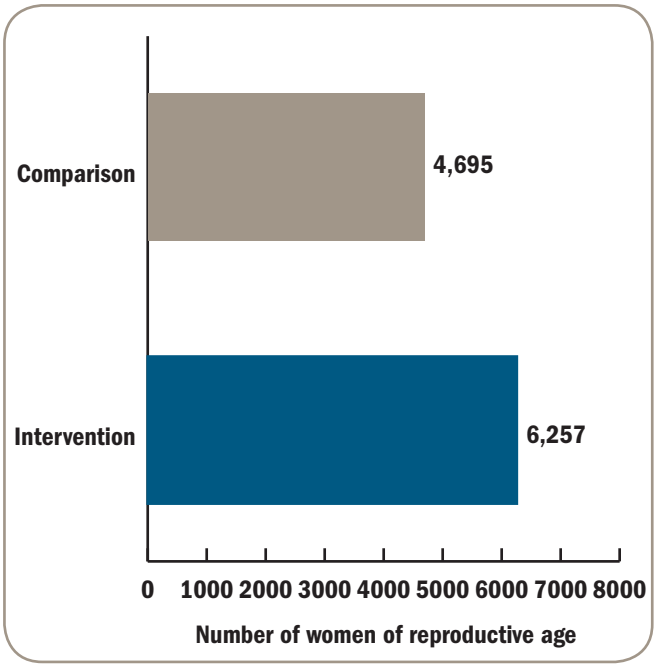
Annex Figure 4.2 Average number of households in a health centre catchment area, by intervention and comparison areas (N=186)



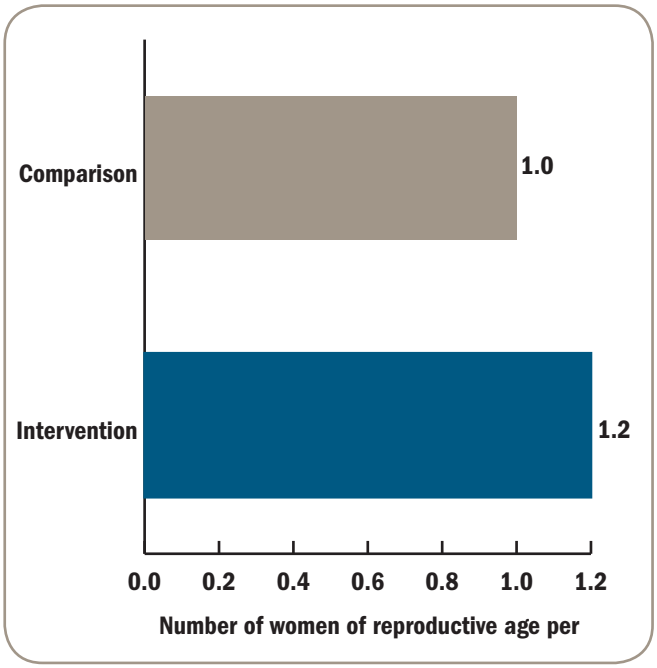
Annex Figure 4.3 Average family size per household in a health centre catchment area, by intervention and comparison areas (N=186)



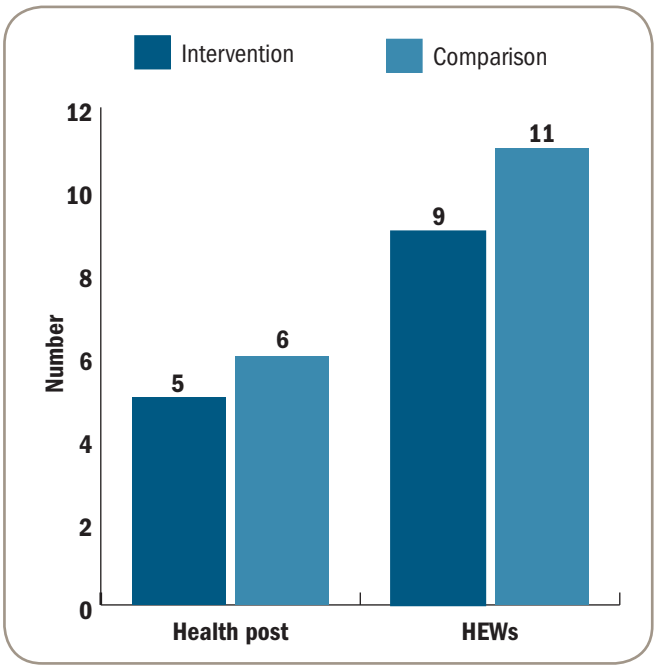
Annex Figure 4.4 Average number of women of reproductive age in a health centre catchment area, by intervention and comparison areas (N=154)



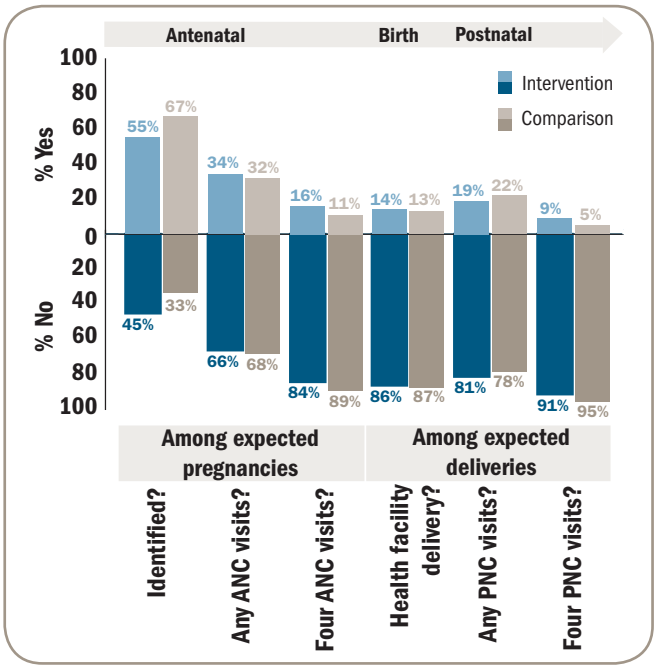
Annex Figure 4.5 Average number of women of reproductive age per household in a health centre catchment area, by intervention and comparison areas (N=144)



Annex Figure 4.7 Average number of health posts and HEWs in a health centre catchment area, by intervention and comparison (N = 204)



Annex Figure 4.9 PHCUs: Service utilisation gap across the continuum of care, by intervention and comparison areas



Annex Table 4.1 Aspects of the structure and function of health centres, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
Facility description				
Piped water	43	[34,53]	36	[28,46]
Electricity supply	59	[49,68]	49	[39,59]
Functional steriliser	77	[68,84]	70	[60,78]
Functional fridge	93	[87,97]	94	[87,97]
Patient toilet	96	[90,99]	88	[80,93]
Functional motorised transport	39	[30,49]	44	[35,54]
MNCH job aids and administrative forms				
Family health cards	89	[82,94]	73	[63,80]
Vaccination cards	93	[87,97]	78	[69,85]
Stock card/bin card	88	[80,93]	74	[64,81]
Request & resupply form	84	[75,90]	65	[55,73]
Birth preparedness and complication readiness form	70	[61,78]	55	[45,64]
Supervision checklist form	83	[74,89]	71	[61,79]
Young infant record form	65	[56,74]	48	[39,58]
IMNCI registration book 0-2 months	92	[85,96]	68	[58,76]
IMNCI registration book 2-59 months	97	[91,99]	78	[68,85]
IMNCI Chart booklet	90	[83,95]	76	[66,83]
Pregnant woman & outcome registration book	94	[88,97]	87	[79,93]

Annex Table 4.3 Maternal and newborn health services routinely provided at health centres, by intervention and comparison areas

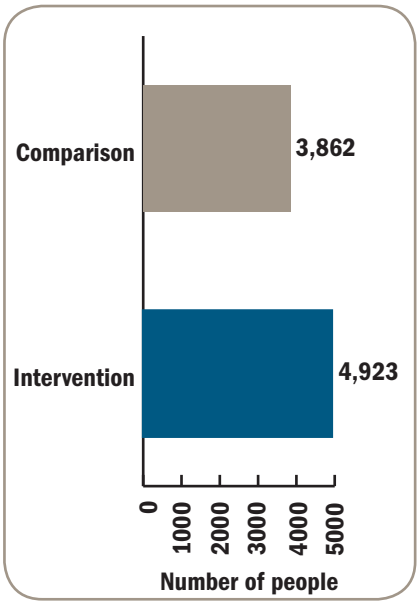
	Intervention		Comparison	
	%	95% CI	%	95% CI
Services offered				
Safe & clean delivery with clean gloves	86	[77,91]	90	[83,95]
Immediate newborn care	91	[84,96]	91	[84,95]
Resuscitation of newborns	82	[73,88]	79	[70,86]
Management of hypothermia	76	[67,83]	82	[74,89]
Management of pre-term and/or low birth weight neonates	44	[35,54]	52	[42,62]
Management of neonatal very severe disease	45	[36,55]	49	[39,59]
Postpartum checks for mothers	94	[88,97]	95	[89,98]
Post-natal health checks for newborns	90	[83,95]	90	[83,95]
Kangaroo mother care	69	[60,77]	70	[60,78]

Annex Table 4.2 Maternal and newborn health related functional equipment, supplies and medicine available at the health centre on the day of the survey, by intervention and comparison areas

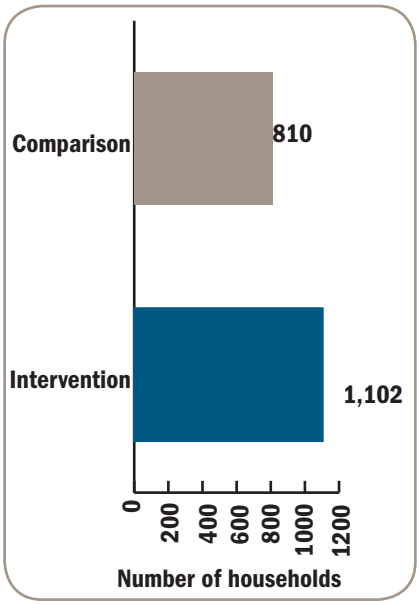
	Intervention		Comparison	
	%	95% CI	%	95% CI
Equipment				
Blood pressure cuff	95	[89,98]	92	[85,96]
Examination couch	97	[91,99]	93	[86,97]
Privacy curtain	65	[56,74]	36	[28,46]
Clinical thermometer	89	[81,93]	64	[54,73]
Stethoscope	100	n/a	97	[91,99]
Clock	67	[58,76]	53	[43,63]
Washable mackintosh	52	[42,61]	31	[23,41]
Ambu bag	87	[79,92]	83	[75,89]
Infant scale	97	[91,99]	92	[85,96]
Tape measure	91	[84,96]	81	[73,88]
Suction bulb	87	[79,92]	72	[62,80]
Warmer for newborn care	34	[25,43]	17	[11,25]
Supplies				
Surgical gloves	95	[89,98]	99	[93,100]
Syringes with needles	98	[93,100]	96	[90,99]
Water for injection	83	[74,89]	79	[70,86]
IV cannula	96	[90,99]	92	[85,96]
Pregnancy test kit	89	[81,93]	85	[77,91]
Proteinuria test kit	63	[53,71]	60	[50,69]
HIV test kit	98	[93,100]	90	[83,95]
Syphilis test kit	51	[41,61]	34	[26,44]
Blood haemoglobin test kit	58	[48,67]	36	[28,46]
Blood glucose test kit	37	[28,46]	25	[17,34]
Medicine/vaccines				
Iron	91	[84,96]	80	[72,87]
Folate	65	[56,74]	55	[45,64]
Gentamycin	61	[51,70]	67	[57,75]
Amoxicillin suspension (125mg/5ml)	88	[80,93]	75	[65,82]
Amoxicillin tab 250 mg (dispersible)	84	[75,90]	80	[72,87]
TTC eye ointment	90	[83,95]	80	[72,87]
Vitamin K 1mg	48	[39,58]	47	[38,57]
Vitamin A 200,000 IU	55	[45,64]	39	[30,49]
Vitamin A 100,000 IU	74	[65,82]	63	[53,72]
BCG	89	[82,94]	83	[75,89]
Polio vaccine	89	[81,93]	83	[75,89]

Annex 4.2 Health Post

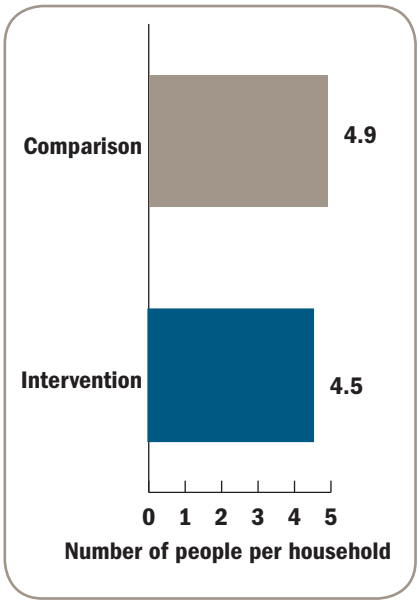
Annex Figure 4.10 Average health post catchment population, by intervention and comparison areas (N=202)



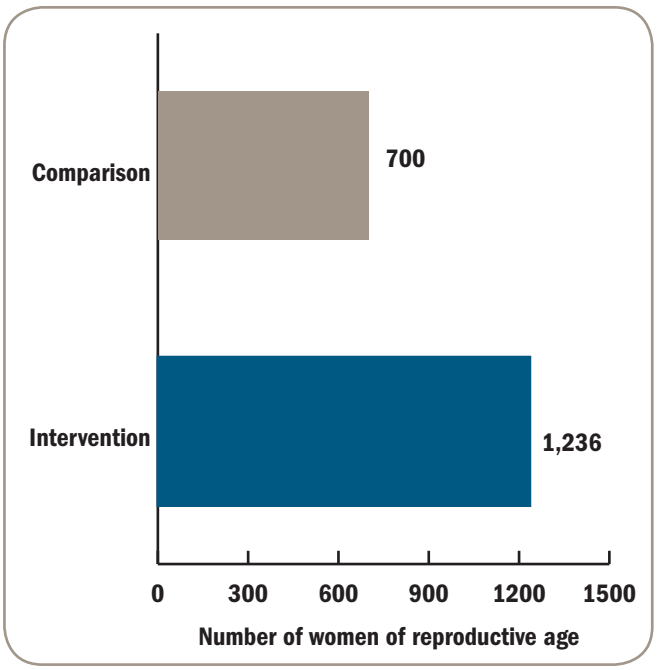
Annex Figure 4.11 Average number of households in a health post catchment area, by intervention and comparison areas (N=200)



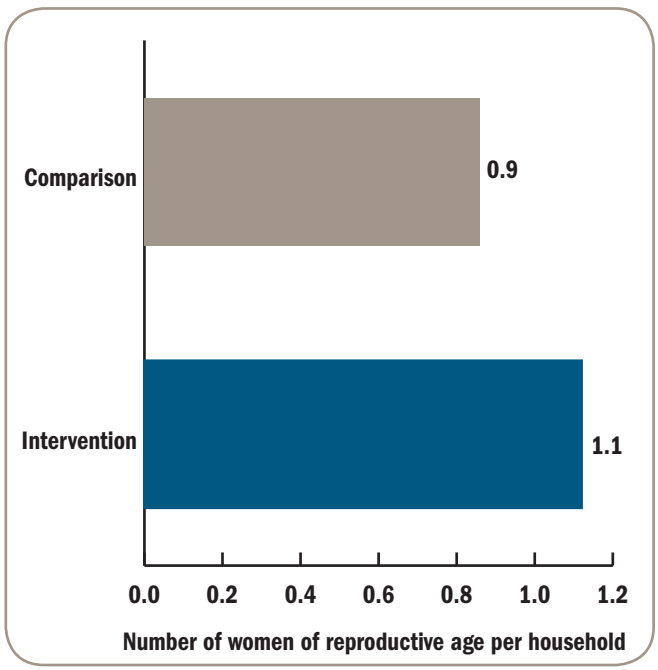
Annex Figure 4.12 Average family size per household in a health post catchment area, by intervention and comparison areas (N=198)



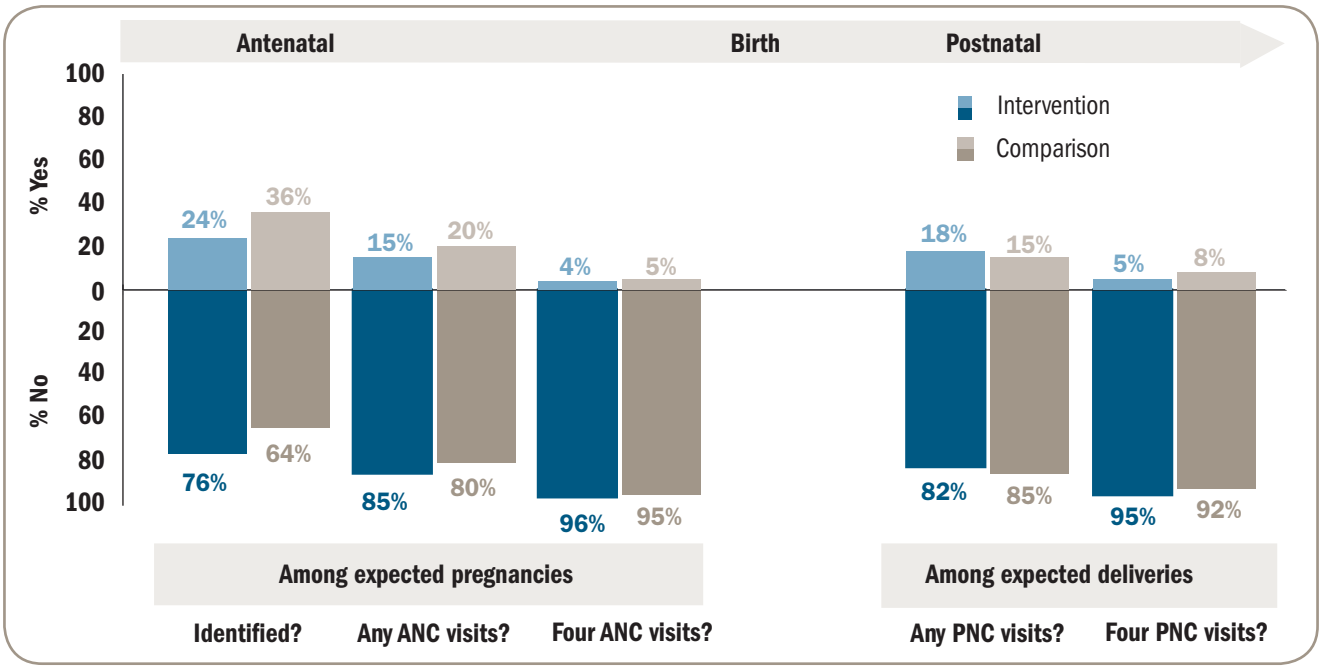
Annex Figure 4.13 Average number of women of reproductive age in a health post catchment area, by intervention and comparison areas (N= 152)



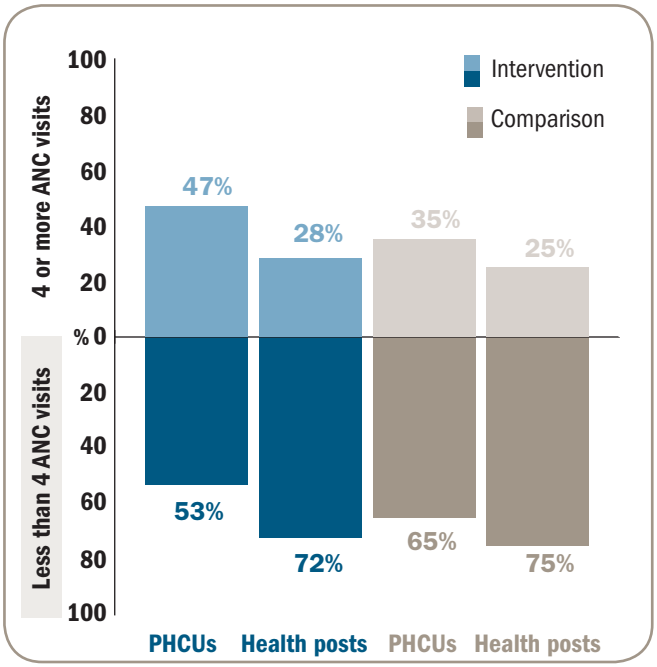
Annex Figure 4.14 Average number of women of reproductive age per household in a health post catchment area, by intervention and comparison areas (N=151)



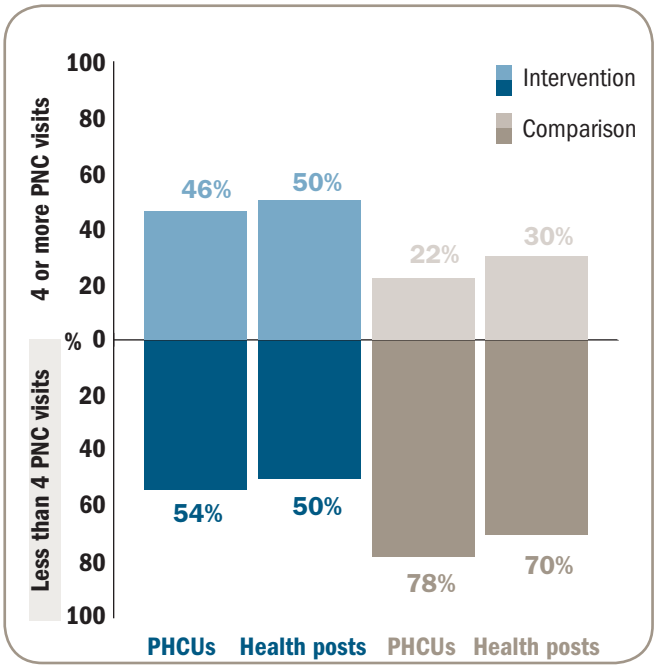
Annex Figure 4.15a Health posts: Service utilisation gap across the continuum of care, by intervention and comparison areas



Annex Figure 4.15e Service utilisation gap in the recommend four ANC visits among those receiving any ANC in health posts and PHCUs, by intervention and comparison areas



Annex Figure 4.15f Service utilisation gap in the recommend 4 PNC visits among those receiving any PNC in health posts and PHCUs, by intervention and comparison areas



Annex Table 4.4 Aspects of the structure and function of health posts, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
Facility description				
Piped water	16	[10,25]	10	[5,17]
Electricity supply	24	[17,33]	16	[10,24]
Functional steriliser	21	[14,30]	20	[13,29]
Functional fridge	24	[17,33]	17	[11,25]
Patient toilet	83	[74,89]	78	[69,85]
MNCH job aids and administrative forms				
Family folder	89	[82,94]	67	[57,75]
Family health cards	86	[77,91]	51	[41,61]
Vaccination cards	86	[77,91]	73	[63,80]
Stock card/bin card	53	[43,62]	32	[24,42]
Request and re-supply form	38	[29,47]	28	[21,38]
Birth preparedness and complication form	41	[32,51]	16	[10,24]
Supervision checklist form	38	[29,47]	20	[13,29]
Young Infant Record Form	74	[65,82]	62	[52,71]
iCCM registration book 0-2 months	91	[84,96]	85	[77,91]
iCCM registration book 2-59 months	92	[85,96]	89	[82,94]
Chart booklet	79	[70,86]	52	[42,62]
Pregnant woman and outcome registration book	88	[80,93]	75	[65,82]

Annex Table 4.5 Maternal and newborn health related equipment, supplies and medicine available at the health post on the day of the survey, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
Equipment				
Blood pressure cuff	77	[68,84]	52	[42,62]
Examination couch	69	[60,77]	50	[40,60]
Privacy curtain	43	[34,53]	28	[21,38]
Clinical thermometer, digital	79	[70,86]	56	[46,65]
Stethoscope	71	[62,79]	57	[47,66]
Clock	45	[36,55]	27	[19,36]
Washable mackintosh	30	[22,39]	16	[10,24]
Infant scale	69	[60,77]	59	[49,68]
Weighing sling	89	[82,94]	73	[63,80]
Tape measure	57	[47,66]	34	[26,44]
Supplies				
Clean gloves	71	[62,79]	58	[48,67]
Syringes with needles	85	[76,90]	76	[66,83]
Medicine/vaccines				
Iron	87	[79,92]	62	[52,71]
Folate	32	[24,41]	21	[14,30]
Amoxicillin tab 250 mg (dispersible)	18	[12,27]	7	[3,14]
TTC eye ointment	48	[39,58]	27	[19,36]
Vitamin A 200,000 IU	38	[29,47]	20	[13,29]
Vitamin A 100,000 IU	60	[50,69]	35	[27,45]
BCG	30	[22,39]	19	[12,28]
Polio vaccine	30	[22,39]	23	[15,32]

Annex Table 4.6 Maternal and newborn health services routinely provided at health posts in the last three months, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
Services offered				
Safe and clean delivery with gloves	45	[36,55]	41	[32,51]
Immediate newborn care	60	[50,69]	59	[49,68]
Management of hypothermia for newborns	43	[34,53]	41	[32,51]
Management of pre-term and/or low birth weight neonates	16	[10,25]	16	[10,24]
Management of very severe neonatal disease	13	[7,20]	10	[5,17]
Postpartum checks for mothers	78	[69,85]	74	[64,81]
Postnatal health checks for newborns	79	[70,86]	73	[63,80]

Annex 4.3 Health Extension Worker

Annex Table 4.7 HEWs' background information and professional history, by intervention and comparison areas

		Intervention	Comparison
Age in years	Mean (SD)	27 (4)	26 (3)
Years of education	Mean (SD)	11 (1)	11 (1)
Employment duration in years	Mean (SD)	5 (2)	5 (3)
Employment duration locally in years	Mean (SD)	5 (2)	4 (3)
Local residence	% [95% CI]	88 [80,93]	87 [79,93]

Annex Table 4.8 HEWs' training received across the continuum of care in the last 12 months, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
ANC period				
Family planning services	34	[25,43]	39	[30,49]
ANC services	23	[16,32]	31	[23,41]
Estimated due date assessment	22	[15,31]	27	[19,36]
Birth preparedness	38	[29,47]	48	[39,58]
PMTCT counselling	26	[18,35]	28	[20,37]
Childbirth period				
Attending normal deliveries	18	[12,27]	21	[14,30]
Misoprostol	7	[3,14]	4	[2,10]
Managing asphyxia	16	[10,25]	40	[31,50]
Postnatal period				
Postpartum care	30	[22,39]	40	[31,50]
Postnatal care	23	[16,32]	45	[36,55]
Local bacterial infection	13	[7,20]	38	[29,48]
Neonatal jaundice	15	[10,24]	28	[21,38]
Neonatal diarrhoea	21	[14,30]	52	[42,62]
Neonatal underweight	27	[19,36]	49	[39,59]
Severe newborn infection				
Identifying signs of severe newborn illness	19	[13,28]	36	[28,46]
Integrated MNH training	26	[18,35]	39	[30,49]
iCCM training	33	[24, 42]	71	[62, 79]

Table 4.9a HEWs' unprompted knowledge of health provision across the continuum of care, by intervention and comparison areas: maternal see page 90

Annex Table 4.9b HEWs' unprompted knowledge of health provision across the continuum of care, by intervention and comparison areas: newborn general care

	Intervention		Comparison	
	%	95% CI	%	95% CI
Newborn care				
Immediate newborn care				
Deliver baby onto mother's abdomen	72	[63,80]	59	[49,68]
Dry and wrap baby	85	[76,90]	83	[75,89]
Assess breathing	71	[62,79]	60	[50,69]
Delay cord clamping for three minutes	49	[40,59]	43	[34,53]
Tie and cut cord appropriately	76	[67,83]	70	[60,78]
Skin to skin contact	61	[51,70]	48	[39,58]
Initiate breastfeeding	80	[71,87]	81	[73,88]
Apply TTC eye ointment	61	[51,70]	49	[39,59]
Give Vitamin K	25	[18,34]	29	[21,39]
Weigh baby	55	[45,64]	52	[42,62]
Preferable timing of postnatal visits				
1st PNC visit as 1 day	39	[30,48]	28	[20,37]
2nd PNC visit as 3 days	28	[20,37]	21	[14,30]
3rd PNC visit as 7 days	27	[19,36]	25	[17,34]
Main components of first PNC visit				
Advise washing hands before touching baby	50	[40,60]	46	[37,56]
Check for danger signs	55	[45,64]	42	[33,52]
Check for congenital abnormalities	29	[21,38]	35	[27,45]
Measure temperature	62	[52,70]	45	[36,55]
Measure weight	70	[61,78]	52	[42,62]
Apply TTC eye ointment	48	[39,58]	36	[28,46]
Encourage exclusive breastfeeding	74	[65,82]	83	[75,89]
Advise to delay bathing	49	[40,59]	50	[40,60]
Encourage skin to skin contact	47	[38,57]	46	[37,56]
Provide cord care	11	[6,18]	21	[14,30]
Education on cord care	16	[10,25]	25	[17,34]
Vaccinate for polio and BCG	62	[52,70]	56	[46,65]
Teach danger sign recognition using family health card	34	[25,43]	31	[23,41]
Main components of subsequent PNC visit				
Check for newborn danger signs	56	[46,65]	54	[44,63]
Advice to keep cord clean	62	[52,70]	55	[45,64]
Assess breastfeeding	83	[74,89]	82	[74,89]
Advise on breastfeeding	84	[75,90]	81	[73,88]
Ensure baby is kept warm	52	[42,61]	51	[41,61]
Check baby's weight	55	[45,64]	38	[29,48]

Annex Table 4.9a HEWs' unprompted knowledge of health provision across the continuum of care, by intervention and comparison areas: maternal

	Intervention		Comparison	
	%	95% CI	%	95% CI
Key components of focused ANC				
Minimum of 4 consultations	67	[58,76]	71	[61,79]
First consultation at health centre	65	[56,74]	62	[52,71]
Birth plan	69	[60,77]	60	[50,69]
Institutional delivery	65	[55,74]	72	[62,80]
Prevent illness and promote health	59	[49,68]	59	[49,68]
Illnesses management	49	[40,59]	52	[42,62]
Danger signs	52	[42,61]	47	[38,57]
Breastfeeding	44	[35,54]	35	[27,45]
Family planning	45	[36,55]	31	[23,41]
Nutrition	57	[47,66]	68	[58,76]
Key components of 1st ANC Assessment				
Estimating due date	64	[55,73]	69	[59,77]
Danger signs	61	[51,70]	56	[46,65]
Blood pressure	79	[70,86]	76	[66,83]
Weight	77	[68,84]	68	[57,75]
Inject TT vaccine	58	[48,70]	60	[50,69]
Provide iron and folate	63	[53,71]	59	[49,68]
Link mother with HDA network	35	[26,44]	26	[18,35]
Provide HEW number to family	27	[19,36]	24	[16,33]
Check history for past pregnancies with difficulties	43	[34,53]	41	[32,51]
Education on nutrition	51	[41,61]	65	[55,73]
Education on ITN use	25	[18,34]	27	[19,36]
Education on PMTCT	46	[37,56]	47	[38,57]
Education on HIV testing and STI	43	[34,53]	41	[32,51]
Education on birth preparedness and complication readiness	31	[23,40]	36	[28,46]
Encourage woman to visit health centre during first trimester	39	[30,49]	44	[35,54]
Key components of 2nd ANC assessment and onwards				
Weight	86	[77,91]	77	[67,84]
Iron and folate use	76	[67,83]	64	[54,73]
Danger signs	64	[54,72]	61	[51,70]
Signs of high risk pregnancies				
Severe abdominal pain	52	[42,61]	60	[50,69]
Offensive discharge	56	[46,65]	59	[49,68]
Fever	67	[58,76]	54	[44,63]
Headache, dizziness or blurred vision	78	[69,85]	72	[62,80]
Convulsions or unconsciousness	71	[62,79]	56	[46,65]
Swollen hands and face	57	[47,66]	56	[46,65]
Vaginal bleeding	75	[66,82]	69	[59,77]

Annex Table 4.9a HEWs' unprompted knowledge of health provision across the continuum of care, by intervention and comparison areas: maternal, comtinued

	Intervention		Comparison	
	%	95% CI	%	95% CI
Key components of childbirth period: monitoring labour				
Foetal heartbeat	69	[58,78]	62	[50,72]
Amniotic fluid colour	35	[25,46]	46	[35,57]
Degree of moulding	51	[40,61]	54	[43,65]
Cervix dilation	61	[51,71]	50	[39,61]
Descent of the head	48	[38,59]	49	[38,60]
Uterine contractions	43	[33,54]	41	[30,52]
Blood pressure	70	[59,79]	70	[58,79]
Temperature	55	[45,66]	51	[40,62]
Pulse	54	[43,65]	47	[36,59]
Postnatal period				
Danger signs during postpartum period				
Vaginal bleeding	93	[87,97]	97	[91,99]
Severe abdominal pain	68	[59,77]	51	[41,61]
Fever	59	[49,68]	58	[48,67]
Severe headache	70	[61,78]	65	[55,73]
Fits/spasms	49	[40,59]	43	[34,53]
Loss of consciousness	59	[49,68]	51	[41,61]
Foul smelling discharge	49	[40,59]	41	[32,51]
Severe calf pain	31	[23,40]	21	[14,30]
Key components of 1st PPC visit				
Check for postpartum danger signs	68	[59,77]	62	[52,71]
Body temperature	61	[51,70]	42	[33,52]
TT vaccine	46	[37,56]	34	[26,44]
Vitamin A	49	[40,59]	31	[23,41]
Provide contraception	47	[38,57]	43	[34,53]
Encourage iron tablet use	46	[37,56]	30	[22,40]
Education on nutrition	67	[58,76]	75	[65,82]
Education on family planning	60	[50,69]	45	[36,55]
Key components of subsequent PPC visit				
Check for danger signs	63	[53,71]	60	[50,69]
Check for/solve breastfeeding problems	72	[63,80]	69	[59,77]
Education on family planning	68	[59,77]	69	[59,77]
Education on nutrition	72	[63,80]	77	[67,84]
Education on hygiene	59	[49,68]	61	[51,70]

Annex Table 4.9c HEWs' unprompted knowledge of health provision across the continuum of care, by intervention and comparison areas: newborn special condition care

	Intervention		Comparison	
	%	95% CI	%	95% CI
Newborn care				
Birth asphyxia				
Signs				
Breathing poorly (less than 30 breaths per minute)	40	[31,50]	38	[29,48]
Management				
Position baby on back	63	[53,71]	39	[30,49]
Clear the airways with gauze	53	[43,62]	56	[46,65]
Use Ambu bag	62	[52,70]	64	[54,73]
Refer to health centre/hospital	41	[32,51]	46	[37,56]
3 follow-up visits	15	[10,24]	12	[7,20]
Management newborns less than 1.5kg				
Continue feeding with expressed breast milk	48	[39,58]	53	[43,63]
Monitor ability to breastfeed	49	[40,59]	52	[42,62]
Cover baby well including head	46	[37,56]	49	[39,59]
Hold close to mother	45	[36,55]	40	[31,50]
Refer urgently with mother to hospital	79	[70,86]	79	[70,86]
Managing newborns 1.5-2.5 kg/32-27 weeks of gestation				
Make sure baby is warm	55	[45,64]	56	[46,65]
Monitor ability to breastfeed	64	[55,73]	63	[53,72]
Monitor baby for the first 24 hours	31	[23,40]	29	[21,39]
Education on cord care	21	[14,30]	29	[21,39]
Educate on breastfeeding	72	[63,80]	75	[65,82]
Bacterial infection of cord				
Give amoxicillin for 5 days	22	[15,31]	9	[5,16]
Follow up care on 2nd day	18	[12,27]	21	[14,30]
Breastfeed more frequently	38	[29,47]	32	[24,42]
Severe jaundice				
Breastfeed more frequently	43	[34,53]	31	[23,41]
Refer urgently	62	[52,70]	57	[47,66]
Cover baby well	19	[13,28]	19	[12,28]
Keep baby close to maternal body	17	[11,26]	17	[11,25]
Moderate dehydration				
Give breast milk	72	[63,80]	64	[54,72]
Zinc for 10 days	44	[35,54]	28	[20,37]
Breastfeed more frequently	72	[63,80]	72	[62,80]
Follow up in 2 days	36	[27,45]	20	[13,29]
Severe dehydration				
Refer urgently	86	[77,91]	76	[66,83]
Give ORS on the way to facility	75	[66,82]	72	[62,80]
Breastfeed more frequently	64	[54,72]	63	[53,72]
Advise mother to keep newborn warm	39	[30,48]	32	[24,42]

Annex Table 4.9c HEWs' unprompted knowledge of health provision across the continuum of care, by intervention and comparison areas: newborn special condition care, continued

	Intervention		Comparison	
	%	95% CI	%	95% CI
Severe newborn illness management				
Continue to breastfeed	59	[49,68]	49	[39,59]
Keep airways open	21	[14,30]	21	[14,30]
Pre-referral dose of amoxicillin and gentamycin	17	[11,26]	14	[8,22]
Refer to higher facility	84	[75,90]	85	[77,91]

Annex Table 4.10 Supervision visits received by HEWs at health posts in the previous three months, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
General supportive supervisions				
Received supportive supervision	83	[74,89]	80	[72,87]
Sources of general supportive supervision				
Federal Ministry of Health	2	[1,10]	1	[0.2,8]
Regional health bureau	7	[3,15]	5	[2,12]
Zone health department	15	[9,24]	11	[6,20]
Woreda health office	63	[52,72]	43	[32,54]
PHCU/health centre	84	[74,90]	88	[79,93]
NGO	16	[10,26]	22	[14,32]
Other	4	[1,10]	0	n/a
Number of supervisory visits*				
Mean (SD)	4	-4	5	-4
Components discussed during supervision*				
Reporting from HDA leader on early identification of pregnancy	85	[76,91]	82	[72,89]
Provision of focussed ANC	86	[77,92]	82	[72,89]
Promotion of institutional delivery	87	[78,93]	88	[79,93]
Safe and clean delivery	78	[68,86]	76	[65,84]
Immediate newborn cord care	28	[19,38]	31	[21,41]
Recognition of asphyxia	42	[32,53]	27	[18,38]
Prevention/management of hypothermia	43	[33,54]	37	[27,48]
Management of pre-term and/or low birth weight neonates	36	[27,47]	33	[24,44]
Management of very severe disease in newborns	48	[37,58]	34	[25,45]
Received iCCM-specific supportive supervision**	**50**	**[40,60]**	**39**	**[30,49]**
iCCM visit from:				
Federal Ministry of Health	4	[1,14]	0	
Regional health bureau	6	[2,17]	13	[5,27]
Zone health department	14	[7,26]	13	[5,27]
Woreda health office	48	[35,62]	40	[26,56]
PHCU/health centre	58	[44,71]	37	[24,54]
NGO	21	[12,35]	48	[33,63]
Other	2	[0,13]	3	[0,16]

*Based on the 168 that received supportive supervision visit in the last three months

** Based on the 92 that had received iCCM specific supportive supervision

Annex Table 4.11 HEWs' and HDA leaders' linkage, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
Presence of HDA leaders in the kebele	**98**	**[93,100]**	**98**	**[92,100]**
Number of HDA 1-5 networks				
Mean (SD)	149	-105	123	-93
Number of HDA 1-30 networks				
Mean (SD)	24	-18	24	-21
Training provided to HDA leaders by HEW in last 3 months*				
MNH problem in the community	91	[84,95]	84	[75,90]
Importance of early identification of pregnant women	93	[86,97]	87	[79,92]
Importance of ANC	94	[87,97]	90	[82,95]
How to approach pregnant women in the community	90	[83,95]	76	[67,83]
How to register pregnant women in the community	89	[82,94]	80	[71,87]
How to report pregnant women to HEWs	94	[87,97]	81	[72,88]
Recognising danger signs	85	[77,91]	74	[65,82]
Recognising danger signs for mothers	86	[78,92]	69	[59,77]
Recognising danger signs for newborns	76	[66,83]	64	[54,73]
Use of the family health card	62	[52,71]	43	[34,53]
Generate demand for MNCH services	87	[79,93]	74	[65,82]
Activities conducted with HDA leaders in last 3 months				
Conduct monthly meetings	96	[90,99]	85	[77,91]
Plan activities together	88	[80,93]	70	[60,78]
Set and review targets	84	[76,90]	72	[62,80]
Provide supportive supervision	84	[76,90]	70	[60,78]
Discuss and/or accept referrals	78	[69,85]	66	[56,75]
Others	16	[10,24]	12	[7,20]
Information received from HDA leaders in last 3 months				
Number of women of reproductive age in the community	63	[53,72]	59	[49,68]
Reproductive history of women in the community	70	[60,78]	62	[52,71]
Family planning status of women in the community	88	[80,93]	78	[69,85]
Number of pregnant women in the community	99	[93,100]	95	[89,98]
Number of deliveries	92	[85,96]	84	[75,90]
Number of newborns	90	[83,95]	82	[73,88]
Number of newborns with danger signs	64	[54,73]	46	[36,56]

Annex 4.4 Health Development Army

Annex Table 4.12 HDA leaders' background information and service history, by intervention and comparison areas

	Intervention	Comparison
	Mean (SD)	Mean (SD)
Age in years	36 (9)	34 (9)
Years of education	3 (3)	3 (4)
Duration of service in years	12 (12)	12 (12)
No. of households receiving care from HDA	9 (9)	8 (8)

Annex Table 4.13 Training received by HDA leaders on health promotion across the continuum of care in the last 12 months, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
ANC period				
Pregnancy identification	42	[37,48]	40	[35,46]
Use of family health card	39	[34,45]	49	[43,55]
Educating on danger signs	37	[32,43]	41	[36,47]
Referring for ANC care	41	[35,46]	46	[40,51]
Birth preparedness plan	44	[38,49]	51	[45,56]
Childbirth period				
Promotion of institutional delivery	58	[53,64]	62	[56,67]
Postnatal period				
Providing home visits	40	[35,46]	41	[36,47]
Referring for PNC care	38	[32,43]	45	[39,51]
Educating on danger signs for newborns	37	[32,43]	39	[34,45]
Referring sick newborns	43	[38,49]	41	[36,47]

Annex Table 4.16 Average number of women who received services from HDA leaders in the last three months, by intervention and comparison areas

	Intervention	Comparison
	Mean (SD)	Mean (SD)
Pregnancy identified	3 (2)	3 (2)
Educated on danger signs	2 (1)	2 (1)
Facility referral for ANC	3 (2)	3 (2)
Facility referral for danger signs	2 (1)	2 (1)
Number of PNC visits	2 (1)	2 (1)

Annex Table 4.14 HDA leaders' unprompted knowledge on health promotion across continuum of care, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
ANC period				
Focused ANC components				
Minimum 4 ANC consultations	58	[52,63]	51	[46,57]
First ANC consultation at health centre	62	[56,67]	58	[52,63]
Ensure a birth plan	46	[40,51]	36	[31,42]
Institutional delivery	63	[57,68]	56	[50,61]
Danger signs across the continuum of care	28	[24,34]	22	[18,27]
Breastfeeding	50	[44,56]	36	[30,41]
Family planning	40	[35,46]	36	[31,42]
Nutrition	48	[43,54]	51	[46,57]
Childbirth period				
Components of home delivery care				
Using clean razor blades	72	[67,77]	65	[59,70]
Not putting anything on the umbilical cord	44	[38,49]	35	[30,41]
Keeping newborn warm	46	[40,51]	31	[26,37]
Delaying bathing	40	[35,46]	28	[23,33]
Postnatal period				
Components of post-delivery care				
Timely PNC home visit	25	[21,30]	20	[16,25]
Checking newborn for danger signs	21	[17,26]	20	[16,25]
Vaccination for newborn	62	[57,68]	48	[43,54]
Refer to health facility	49	[43,54]	45	[40,51]
Breastfeeding	63	[58,69]	58	[52,63]

Annex Table 4.15 Health system: supportive supervision provided to HDA leaders in the last three months, by intervention and comparison areas

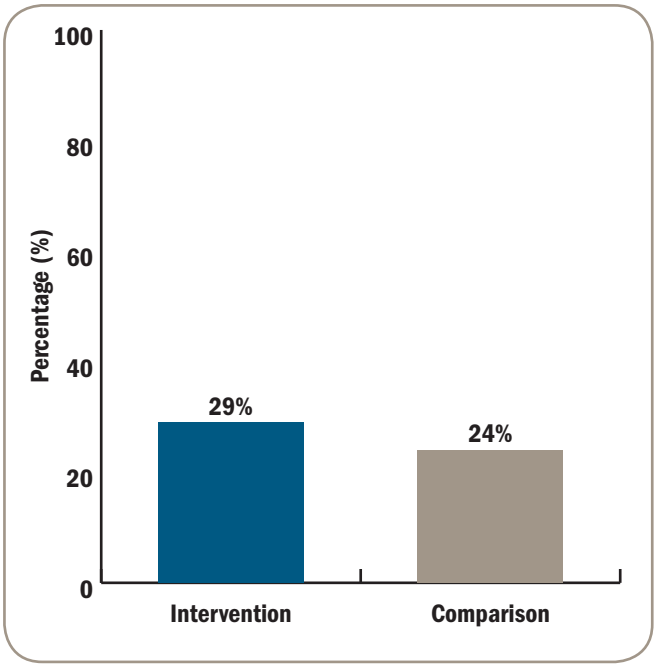
	Amhara	Oromia	SNNP	Tigray
	n (%)	n (%)	n (%)	n (%)
Total N of HDA leaders	**146**	**239**	**172**	**48**
HDA leaders receiving supportive supervision	23 (16)	64 (27)	56 (32.6)	31 (65)
Source of supportive supervision				
Woreda health office	7 (5)	17 (7)	11 (6)	11 (23)
Health centre	20 (14)	46 (19)	43(25)	19 (40)
Health post (HEW)	13 (9)	25 (11)	30 (17)	23 (48)
Command post	1 (1)	12 (5)	18 (11)	11 (23)
Other	0 (0)	3 (1)	2 (1)	0 (0)
Mean number of supervision visits (SD)	2 (1)	3 (2)	3 (3)	4 (2)

Annex III Household Survey

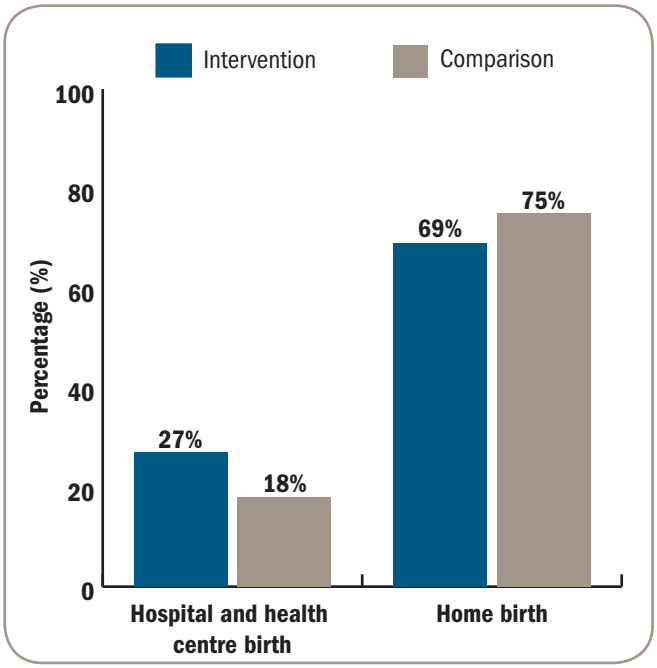
Annex Table 5.1 Characteristics of women of reproductive age (15-49 years) with a live birth in the last 12 months, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
Age, Mean (SD)	28	-7	27	-6
Years of education, Mean (SD)	2	-3	2	-3
Marital status N (%)				
Currently married	92	[89,94]	92	[89,95]
In a union	3	[1,5]	1	[1,3]
Never married	1	[0,2]	1	[0,2]
Divorced	3	[1,6]	4	[3,7]
Widowed	1	[0,2]	1	[0,2]
Not applicable	1	[0,3]	0	
Religion N (%)				
Orthodox	57	[46,67]	53	[44,62]
Catholic	2	[0,4]	1	[0,3]
Protestant	27	[19,37]	25	[18,34]
Muslim	13	[8,22]	21	[14,30]
Other	1	[0,3]	0	
HDA N (%)				
HDA 1-5 leaders	17	[13,21]	22	[17,28]
Development team leaders	5	[3,8]	8	[5,11]

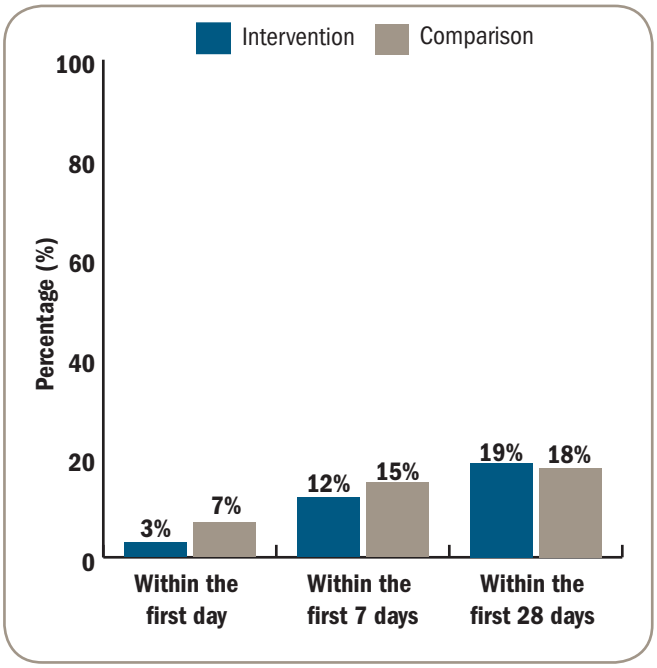
Annex Figure 5.1 ANC received during first trimester among all women, by intervention and comparison areas



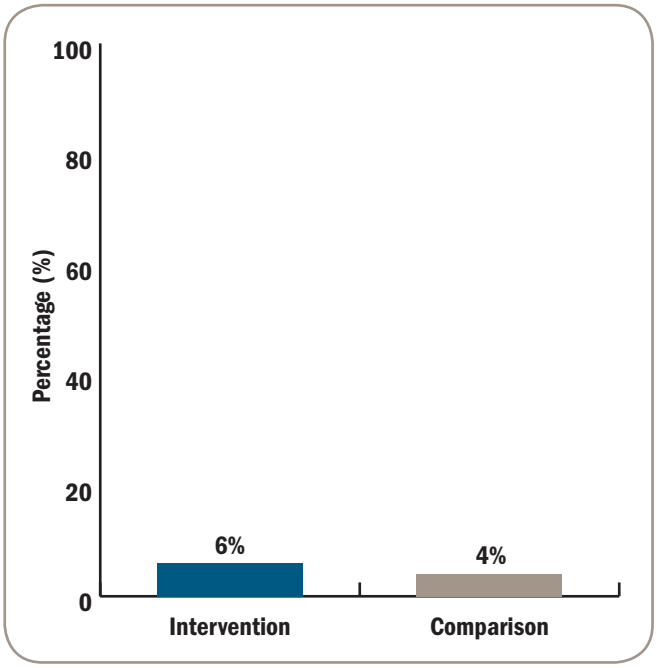
Annex Figure 5.5 Place of delivery among all women, by intervention and comparison areas



Annex Figure 5.11 Coverage of PNC visits during neonatal period (first 28 days), by intervention and comparison



Annex Figure 5.13 Newborns with severe neonatal infection based on one or more symptoms, by intervention and caparison areas



Annex Table 5.2a ANC period: identification of pregnancy and ANC coverage, completeness, knowledge and practice among women, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
Early Pregnancy Identification				
Gestational age in weeks at 1st ANC visit, Mean (SD)	16	-9	17	-7
ANC coverage				
Any ANC during pregnancy	70	[65,74]	68	[64,72]
ANC received during first trimester	29	[23,35]	24	[19,28]
Place where ANC was received:				
Home	12	[8,16]	10	[6,16]
Health post	47	[38,56]	46	[38,54]
Health centre	62	[54,69]	69	[61,76]
Hospital	4	[2,10]	3	[1,6]
Other	3	[1,6]	1	[0,4]
Completeness of ANC visit				
N of ANC visits during last pregnancy:				
None	32	[26,39]	33	[28,38]
One	4	[2,6]	3	[2,5]
Two	8	[5,11]	11	[8,13]
Three	15	[12,19]	17	[14,21]
Four or more	41	[37,46]	37	[32,41]
N of ANC visits during last pregnancy among those that had any ANC visit				
One	5	[3,9]	4	[2,7]
Two	11	[7,17]	16	[12,20]
Three	22	[18,28]	26	[21,31]
Four or more	61	[54,68]	54	[49,60]
ANC by individual aspect of care				
Weight measured	80	[76,84]	77	[73,82]
Height measured	37	[32,43]	36	[31,41]
Blood pressure measured	73	[68,78]	73	[68,78]
Urine sample assessed	43	[37,48]	40	[34,45]
Blood sample assessed	21	[17,26]	15	[12,20]
STI status assessed	23	[19,28]	22	[18,27]
HIV information	76	[71,80]	68	[63,73]
Breastfeeding information	60	[54,65]	51	[45,56]
Nutrition information	74	[68,78]	65	[60,70]
Birth preparedness information	56	[51,62]	58	[52,63]
Pregnancy danger signs information	49	[44,55]	43	[37,48]
Folate/iron tablets received	66	[61,71]	54	[48,59]
TT vaccine:				
None	25	[19,31]	36	[29,43]
One	19	[13,25]	14	[11,18]
Two or more	57	[49,64]	50	[43,57]

Annex Table 5.2a ANC period: identification of pregnancy and ANC coverage, completeness, knowledge and practice among women, by intervention and comparison areas, cotninued

	Intervention		Comparison	
	%	95% CI	%	95% CI
Maternal knowledge				
Birth preparedness components				
Financial preparation	58	[52,63]	48	[42,53]
Transport for delivery	14	[11,19]	8	[6,12]
Nutritious food	90	[87,93]	91	[87.4,93.7]
Identify birth attendant	26	[22,32]	20	[16,25]
Identify facility for delivery	33	[28,39]	30	[25,36]
Identification of blood donor	4	[3,7]	1	[0,3]
Clean clothes	76	[71,81]	69	[64,74]
Cover to deliver on	48	[43,54]	43	[38,48]
Gloves	7	[4,10]	3	[1,5]
Cotton gauze	5	[3,8]	3	[2,6]
Soap	45	[39,50]	42	[37,48]
New razor blades	62	[57,67]	60	[54,65]
Sterilised scissors	7	[5,10]	5	[3,8]
Sterilised thread	23	[18,28]	22	[18,27]
ANC danger signs				
Vaginal bleeding	38	[32,43]	31	[25,36]
Severe abdominal pain	40	[34,45]	38	[32,43]
Offensive discharge	24	[20,30]	22	[18,27]
Fever	34	[29,39]	37	[31,42]
Headache, dizziness, or blurred vision	32	[27,38]	29	[24,34]
Convulsions or unconsciousness	15	[11,19]	12	[9,16]
Swollen hands and face	23	[18,28]	21	[17,26]

Annex Table 5.2a ANC period: identification of pregnancy and ANC coverage, completeness, knowledge and practice among women, by intervention and comparison areas, cotninued on next page

Annex Table 5.2a ANC period: identification of pregnancy and ANC coverage, completeness, knowledge and practice among women, by intervention and comparison areas, cotninued

	Intervention		Comparison	
	%	95% CI	%	95% CI
Maternal practice				
Any formal birth preparedness	90	[86,93]	86	[82,90]
Components of birth preparedness				
Financial preparation	63	[57,68]	56	[50,61]
Transport for delivery	14	[11,19]	9	[6,12]
Nutritious food	98	[96,99]	96	[93,98]
Identify birth attendant	29	[24,35]	27	[22,32]
Identify facility for delivery	35	[30,41]	32	[27,37]
Identification of blood donor	3	[1,6]	0.4	[0.0,3]
Clean clothes	78	[73,82]	76	[71,81]
Cover to deliver on	48	[42,54]	51	[45,57]
Gloves	6	[4,10]	3	[2,6]
Cotton gauze	3	[2,6]	4	[2,7]
Soap	50	[45,56]	45	[40,51]
New razor blades	66	[61,72]	69	[64,75]
Sterilised scissors	5	[3,8]	6	[4,9]
Sterilised thread	25	[21,31]	28	[23,33]
Other	5	[3,8]	4	[2,7]
Level of birth preparedness with respect to six clean birth components among all women*				
None	42	[35, 48]	47	[41, 53]
One	8	[6, 11]	7	[5, 9]
Two	16	[12, 21]	12	[9, 16]
Three	14	[11, 17]	13	[10, 17]
Four	12	[9, 15]	11	[8, 15]
Five	6	[4, 10]	9	[6, 13]
Six	2	[1, 6]	1	[0, 2]
Level of birth preparedness with respect to six clean birth components among women with any ANC visit*				
None	16	[11,21]	22	[18,30]
One	12	[8,16]	10	[7,13]
Two	23	[18,29]	18	[14,24]
Three	20	[16,24]	20	[15,24]
Four	17	[14,21]	16	[12,21]
Five	9	[6,13]	13	[9,18]
Six	4	[1,8]	0	[0,3]

*Prepared for the following components: gloves, soap, cover to deliver on, clean clothes, sterilised scissors/new razor and sterilised thread

Annex Table 5.2b Pregnant women's conference attendance among women who had an ANC visit, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
Pregnant women conference				
Attended	27	[23,33]	19	[15,24]
Discussion contents				
Birth preparedness	82	[73,89]	75	[63,85]
Importance of ANC	77	[67,85]	71	[58,81]
Institutional delivery	92	[83,96]	82	[70,90]
Importance of post natal care	59	[48,69]	57	[45,69]
Seeking newborn care	62	[51,72]	74	[61,83]
Place of meeting				
Home of HDA leader	4	[1,11]	2	[0,11]
Kebele/gote meeting place	28	[19,40]	38	[24,53]
Health post	47	[36,58]	51	[37,64]
Health centre	21	[12,34]	10	[4,24]

Annex Table 5.3a Women's place of and assistant at delivery, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
Place of delivery				
Home	69	[65,74]	75	[71,79]
Health post	2	[1,4]	4	[3,6]
Health centre	22	[19,27]	14	[11,17]
Hospital	5	[3,7]	4	[3,7]
Other	2	[1,4]	3	[1,4]
Primary assistance at delivery				
Doctor	5	[3,8]	5	[3,7]
Nurse/midwife	26	[22,30]	19	[16,23]
HEW	3	[2,5]	4	[3,6]
HDA leader	1	[1,3]	2	[1,3]
TBA	19	[15,23]	18	[15,22]
Relative/friend	41	[36,46]	47	[43,52]
Nobody	3	[2,5]	3	[2,5]

Annex Table 5.3b Women's childbirth practices based on place of delivery, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
Home delivery				
Practice during delivery				
Birth attendant washed hands with soap before assisting	70	[62,76]	69	[62,76]
Birth attendant wore gloves	13	[9,17]	14	[11,18]
Delivered on clean surface	90	[86,93]	91	[88,94]
Use of misoprostol during delivery	3	[1,5]	4	[2,6]
Delivery complications				
Had delivery complications	44	[37,50]	47	[41,54]
Type of complications:				
Heavy bleeding	29	[24,36]	29	[24,34]
Labour lasting over 12 hours	10	[7,14]	14	[11,19]
Loss of consciousness	12	[8,17]	16	[12,22]
Premature labour	11	[8,16]	12	[8,16]
Foul discharge	5	[3,8]	4	[2,7]
Baby in abnormal position	5	[3,8]	4	[2,7]
Advised to go to higher facility	11	[7,16]	13	[10,19]
Referral accomplished	24	[12,42]	12	[5,24]
Primary reason for refusing referral:				
Remote facility	9	[3,25]	12	[6,22]
Expensive	3	[0,11]	4	[1,17]
Dislike of going to a facility	4	[1,13]	6	[2,18]
No permission to go	19	[10,34]	43	[29,57]

Annex Table 5.3b Women's childbirth practices based on place of delivery, by intervention and comparison areas, continued

	Intervention		Comparison	
	%	95% CI	%	95% CI
Facility Delivery				
Practices during delivery				
Birth attendant washed hands with soap before assisting	87	[76, 93]	91	[80, 96]
Birth attendant wore gloves	95	[84, 98]	98	[90, 99]
Delivered on clean surface	94	[84,98]	96	[90, 99]
Use of misoprostol during delivery	61	[49,71]	67	[55, 77]
Length of facility stay in days				
Mean (SD)	2	5	1	2
Delivery complications				
Had delivery complication	60	[48, 71]	64	[51, 75]
Type of complications				
Heavy bleeding	33	[24,43]	34	[25,46]
Labour lasting over 12 hours	34	[25,43]	48	[37,60]
Loss of consciousness	18	[11,27]	36	[25,47]
Premature labour	11	[5,22]	7	[3,15]
Foul discharge	11	[6,20]	8	[4,16]
Baby in abnormal position	12	[6,20]	12	[6,22]
Advised referral	**37**	**[27,49]**	**42**	**[29,56]**
Primary reason for referral	**33**	**[25,42]**	**37**	**[26,49]**
One or more danger signs	25	[14,42]	48	[32,65]
Lack of equipment	30	[17,47]	29	[17,44]
Lack of trained human resources	23	[11,41]	19	[9,37]
Other	23	[11,42]	3	[0,21]
Referral accomplished	**92**	**[77,98]**	**100**	**n/a**
Primary reason for refusing referral				
Expensive	3	n/a	0	n/a

Annex Table 5.4 Postpartum care provider and timing of visits for women, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
PPC within six weeks of delivery				
Had 1st PPC visit	**15**	**[12,20]**	**13**	**[9,18]**
Care provider for 1st PPC visit				
Doctor	6	[2,16]	5	[2,15]
Nurse/midwife	32	[22,45]	40	[23,60]
HEW	60	[48,71]	53	[36,70]
HDA leader	2	[0,11]	2	[0,11]
Place of 1st PPC visit				
Home	32	[20,46]	24	[14,39]
Health post	23	[14,36]	31	[19,46]
Health centre	38	[26,51]	37	[21,57]
Hospital	7	[3,16]	3	[1,12]
Other	0	n/a	5	[1,19]
Had 2nd PPC visit	**8**	**[5,12]**	**4**	**[3,7]**
Care provider for 2nd PPC visit				
Doctor	6	[1,21]	10	[2,33]
Nurse/midwife	26	[15,43]	33	[14,60]
Health officer	3	[0,20]	0	
EW	65	[46,79]	57	[32,79]
Place of 2nd PPC visit				
Home	19	[9,36]	24	[10,46]
Health post	47	[32,63]	38	[17,65]
Health centre	25	[14,41]	29	[12,53]
Hospital	8	[3,23]	5	[1,29]
Other	0		5	[1,29]
Had 3rd PPC visit	**4**	**[2,6]**	**3**	**[1,5]**
Care Provider for the 3rd PPC visit				
Doctor	7	[1,40]	0	n/a
Nurse/midwife	40	[19,66]	45	[18,75]
HEW	53	[29,76]	55	[25,81]
Place of 3rd PPC visit				
Home	19	[5 48]	18	[4,53]
Health post	38	[18,63]	45	[13,82]
Health centre	38	[18,63]	36	[11,73]
Hospital	6	[1,38]	0	n/a

Annex Table 5.5 Immediate newborn care provided at home and facility deliveries, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
Any postnatal visit				
Within the first day	3	[2,6]	7	[5,11]
Within the first 7 days	12	[8,17]	15	[11,20]
Within the first 28 days	19	[14,25]	18	[14,23]
Provider of the 1st PNC check within the first 28 days				
Doctor	4	[1,13]	4	[1,11]
Nurse/midwife	25	[17,36]	42	[29,56]
Health officer/assistant	0	n/a	1	[0,9]
HEW	67	[56,77]	48	[34,62]
HDA leader	0	n/a	3	[1,10]
Don't know	3	[1,12]	3	[1.10]
Place of the 1st PNC check within the first 28 days				
Home	39	[26,53]	43	[31,56]
Health post	28	[18,41]	10	[5,20]
Health centre	28	[20,39]	37	[24,52]
Hospital	4	[1,14]	6	[3,14]
Other	0	n/a	4	[1,15]
Home birth				
Birth asphyxia: Breathing difficulty	7	[5,11]	11	[7,15]
Weighed at birth	2	[1,5]	3	[2,6]
TTC eye ointment	4	[2, 7]	1	[0,3]
Immediate cord care in home delivery				
Clean instrument to cut cord	94	[91,96]	94	[90,96]
Clean instrument to tie cord	53	[48,59]	62	[57,67]
Immediate application to cord				
Immediately applied something	39	[31, 47]	27	[21, 33]
Applied:				
Butter	92	[83,96]	84	[76,90]
Ash	3	[1,8]	0	
Ointment	2	[0,7]	9	[4,17]
Cold water	2	[1,6]	0	
Other	0	n/a	5	[2,12]
Hypothermia				
Newborn dried <30 mins after birth	80	[73,85]	79	[73,84]
Newborn wrapped <30 mins after birth	82	[76,87]	88	[83,92]
Timing of the first bath:				
In the first hour	40	[33,48]	47	[39,55]
After one hour	26	[21,31]	15	[11,20]
After one day	34	[27,41]	37	[30,45]
Breastfeeding				
Breastfeeding initiation timing:				
In the first hour	63	[57,69]	59	[52,66]
After one hour but during the first day	28	[23,34]	30	[23,35]
After the first day	9	[6,14]	12	[8,17]
Exclusive Breastfeeding for first 28 days	93	[88,96]	89	[84,93]

Annex Table 5.5 Immediate newborn care provided at home and facility deliveries, by intervention and comparison areas, continued

	Intervention		Comparison	
	%	95% CI	%	95% CI
Facility birth				
Birth Asphyxia: Breathing difficulty	14	[8,22]	20	[13,30]
Weighed at birth	81	[72,87]	63	[50,73]
TTC eye ointment	47	[34, 60]	31	[21,43]
Immediate cord care				
Clean instrument to cut cord	72	[61,81]	50	[39, 61]
Clean instrument to tie cord	71	[60, 80]	70	[58, 79]
Immediate application to cord				
Immediately applied something	11	[6, 20]	11	[5, 20]
Applied:				
Butter	54	[23,82]	8	[1,44]
Ointment	15	[2,64]	31	[12,59]
Other	23	[7,55]	17	[4,48]
Hypothermia				
Newborn dried <30 mins after birth	85	[72, 93]	78	[56, 90]
Newborn wrapped <30 mins after birth	81	[67, 90]	93	[73, 98]
Timing of the first bath:				
In the first hour	10	[6,17]	8	[4,17]
After one hour	13	[8,21]	11	[6,20]
After one day	77	[68,84]	80	[70,88]
Breastfeeding				
Breastfeeding initiation timing:				
In the first hour	61	[51,70]	71	[59,81]
After one hour but during the first day	34	[25,43]	22	[14,34]
After the first day	6	[2,14]	7	[3,15]
Exclusive Breastfeeding for first 28 days	98	[92,99]	97	[90,99]

Annex Table 5.6 Management of neonatal illness, by intervention and comparison areas

	Intervention		Comparison	
	%	95% CI	%	95% CI
Neonatal illness				
History of sickness	11	[8,15]	13	[11,17]
Formal health care seeking for ill neonates	35	[21, 52]	46	[34, 59]
Neonatal sepsis				
Newborns with severe neonatal infection	32	[19,48]	38	[28,50]
Antibiotic care received for neonatal sepsis	27	[9,57]	29	[12,55]

Photo opposite: Ethiopian woman © Dr Neil Spicer

IDEAS project

IDEAS (Informed Decisions for Actions) aims to improve the health and survival of mothers and babies through generating evidence to inform policy and practice. Working in Ethiopia, northeast Nigeria and the state of Uttar Pradesh in India, IDEAS uses measurement, learning and evaluation to find out what works, why and how in maternal and newborn health programmes.

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