The Last Ten Kilometers Project (L10K)

Baseline Household Health Survey: Amhara, Oromiya, SNNP, Tigray

Research & Training Institute, Inc.

THE LAST TEN KILOMETERS PROJECT

BASELINE HOUSEHOLD HEALTH SURVEY: AMHARA, OROMIYA, SNNP AND TIGRAY

ADDIS ABABA, AUGUST 2009

The Last Ten Kilometers: What it Takes to Improve Health Outcomes in Rural Ethiopia

The Last Ten Kilometers: What it Takes to Improve Health Outcomes in Rural Ethiopia is a Bill and Melinda Gates Foundation funded project implemented by JSI Research & Training Institute, Inc. in four regions of the country—i.e. , Amhara, Oromiya, Southern Nations, Nationalities and People's Region (SNNP) and Tigray—covering a population of about 13 million. The Last Ten Kilometers Project aims to strengthen the bridge between households, communities, and the health extension program of the Ethiopian Government by mobilizing families and communities to more fully engage to improve household and community health practices, ultimately leading to improved key reproductive, maternal, neonatal and child health (RMNCH) outcomes and contribute towards achieving MDGs 4 and 5 (i.e., decrease child and maternal mortality rates).

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Abstract

The Last Ten Kilometers (L10K) Project in collaboration with the Regional Health Bureaus of Amhara, Oromiya, SNNP and Tigray conducted a baseline household health and community survey to benchmark the reproductive, maternal, neonatal and child health (RMNCH) outcome indicators in its project areas. The survey which was conducted during the period December 2008–January 2009 gathered information from 204 communities or kebeles and 6,277 women using a two-stage cluster sampling methodology. This report presents the survey results that describe the availability, perceived quality, awareness, knowledge, demand, access and utilization of RMNCH services in the L10K project areas. This report is the first-of-its-kind to describe the neonatal health care practices in rural Ethiopia. Implications of the survey findings for the health extension program of the Ethiopian Government are discussed.

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ACRONYMS

ANC	Antenatal Care
ARI	Acute Respiratory Infection
BCC	Behavioral Change Communication
CBRH	Community Based Reproductive Health
CBRHA	Community Based Reproductive Health Agents
CHP	Community Health Promoter
CPR	Contraceptive Prevalence Rate
EPI	Expanded Program of Immunization
ENA	Essential Nutrition Action
ESHE	Essential Health Services in Ethiopia
FMOH	Federal Ministry of Health
HEW	Health Extension Worker
IMNCI	Integrated Management of Newborn and Childhood Illness
JSI R&T	JSI Research & Training Institute, Inc.
L10K	Last Ten Kilometer
MDGs	Millennium Development Goals
NGO	Non-Governmental Organization
ORS	Oral Rehydration Salt
ORT	Oral Rehydration Therapy
PPS	Probability Proportional to Size
RHB	Regional Health Bureau
RHF	Recommended Home Fluid
RMNCH	Reproductive, Maternal, Neonatal, and Child Health
SNNP	Southern Nations, Nationalities and People's Region
TTI	Tetanus Toxoid Injection
USAID	United States Agency for International Development
vCHW	volunteer Community Health Workers
WHO	World Health Organization

ACKNOWLEDGMENTS

We would like to start by thanking Bill and Melinda Gates Foundation for funding this survey and the Federal Ministry of Health (FMOH) of the Ethiopian Government for supporting it. The acknowledgement of the survey results by the FMOH has been critical for the use of this report to plan and evaluate future reproductive, maternal, neonatal, and child programs in Ethiopia.

Next, we would like to thank Dr. Yared Mekonnen for taking the leadership in designing the survey tools, conducting the field operations, data entering, data quality assurance and cleaning, data analysis, designing the dissemination plan of the survey findings, and for promptly preparing the dissemination materials including the write-up of this report.

The implementation of the baseline survey would not have been possible without the support of the Regional Health Bureaus (RHBs) of Amhara, Oromiya, Southern Nations, Nationalities and People's Region and Tigray. The involvement of the RHBs from the inception of the baseline survey, and especially for providing us with staff from within the regions to be trained as interviewers and supervisors to conduct the survey, has been pivotal to maintain data quality. We thank the interviewers and the supervisors for their hard work, their dedication, and for being able to finish the field work on schedule.

We would like to thank Saving Newborn Lives, Ethiopia, for helping us design the instrument for measuring neonatal health care practices in Ethiopia which has not been reported before.

Certain organizations played a significant role in the logistics support for this survey. The Integrated Family Health Program (IFHP) and L10K implementing partners, mainly Amhara Development Association, Fayyaa Integrated Development Association, Oromiya Development Association, and Relief Society of Tigray provided four-wheel vehicles for the field operations of the survey. UNICEF provided testing kits to determine the iodine content of household salt.

We would also like to acknowledge the collaboration that we have had with the IFHP in conducting the survey in Tigray. The L10K project and IFHP were able to pool resources together enabling us to conduct a survey that provides regional estimates for the region.

The contribution of certain individuals in conducting this survey has been noteworthy. Dr. Patricia Davis and Ato Girma Kassie provided valuable input to finalize the survey tools. Ato Kassahun Mengistu and Ato Araya Abreha validated the translating of the survey tools into Oromifa and Tigregna, respectively, and facilitated the survey training in those regions. Ms. Agnes Guyon provided valuable comments to improve this report.

The contribution of the central and regional L10K teams in all the steps of organizing and implementing the baseline survey has been the cornerstone to its success. We would like to appreciate our L10K team for their perseverance; hard work, enthusiasm and the can do mentality in the undertaking of this survey and beyond.

Lastly, we would also like to thank the women, including the health extension workers who took their time to respond to the questionnaire and share with us a glimpse of their realities and providing us with invaluable information that will be key not only for L10K but for all partners and stakeholders supporting the Government of Ethiopia's health extension program.

EXECUTIVE SUMMARY

The Last 10 Kilometers (L10K) Project, which is implemented by JSI Research & Training Institute, Inc. (JSI R&T) with funding by the Bill and Melinda Gates Foundation works in four regions in Ethiopia; namely Amhara, Oromiya, Southern Nations, Nationalities and People's Region (SNNP), and Tigray (population of about 13 million) in support of the health extension program (HEP). The project aims to strengthen the bridge between households, communities, and the Government's HEP primarily by mobilizing families and communities to more fully engage to improve household and community health practices, ultimately leading to improved key reproductive, maternal, neonatal and child health (RMNCH) outcomes and contribute towards achieving MDGs 4 and 5 (i.e., decrease child and maternal mortality rates).

To set benchmarks and assess achievement of its sub-goals, the L10K project in collaboration with its partners, conducted a baseline household health survey in its project woredas of Amhara, Oromiya, SNNP and Tigray regions. The survey was fielded during the period December 2008-January 2009.

A cluster sampling methodology was employed to select kebeles[1] (as clusters) to be included in the survey from the L10K project woredas of the four regions. Using probability proportional to size (PPS), 204 kebeles were selected from the 4 regions (i.e. 50 from Amhara, 50 from Oromiya, 50 from SNNP and 54 from Tigray). Using a parallel sampling method the survey interviewed 4,080 women in reproductive age, 2,448 women with children 0 to 11 months, and 2,040 women with children 12 to 23 months from the 204 kebeles. On the whole, the survey interviewed 6,277 women from the 204 kebeles (i.e. 1,724 from Amhara, 1,527 from Oromiya, 1,484 from SNNP, and 1,542 from Tigray). The survey used pre-coded survey questionnaires to collect information regarding the RMNCH indicators of interest. Kebele-level information on health service availability and type, number of HEWs in the kebele, duration of service of the HEWs, availability and number of vCHWs, whether malaria is endemic in the kebele were some of the indicators that were also collected via community questionnaire.

A summary of the key findings, conclusion and selected recommendations is as follows.

Health service availability and the health extension workers (HEWs)

- Health posts were reported to be present in 70% of the kebeles sampled from the L10K project areas of the four regions. Higher facilities including health stations and health centers were reported from 21% of the sampled kebeles.
- Health extension workers were reported to be present in about 93% of the kebeles; 82% of the kebeles served with two or more HEWs.

Health messages from the HEWs

- About 36% of the women reported being contacted by the HEWs who talked to them about their health and that of their children in the 6 months prior to the survey.
- Among those women who reported contact with HEWs in the last 6 months, the majority (59%) reported having received a promotional message on pit latrine construction, 54% on

[1] A kebele is the lowest administrative unit with an average population of about 5,000 people.

personal hygiene, and 52% on latrine use. The receipt of messages concerning safe water use was reported by 20% of the women and 19% reported being informed about immunization. Information on family planning was received by 17% of the women. A tenth said they were informed about child nutrition.

- HEWs are rarely addressing health messages concerning pregnancy care, newborn care, and treatment practices for sick children, among others to women.

Model family: awareness and participation

- One of the components of the HEP is the promotion of model families in the community. Nevertheless, women's awareness of the model family can be considered low with only 19% reporting ever having heard of a model family from the four regions.
- Only about 4% reported their family graduated as a model family, of which only half presented certification to the interviewer. On the other hand, about 6% are working towards becoming a model family.
- A high willingness to participate in the model family program can be noted, as reported by 87% of the women who heard about the program but were not yet part of it.

Volunteer community health workers (vCHWs)

- Nearly 90% of the kebeles included in the survey reported at least one vCHW. On average, there were 12 vCHWs per kebele in the L10K project focus areas of the four regions.

Household water supply and sanitation

- Half of the women (50%) from the L10K project areas of the four regions reported having a clean water supply.
- Household toilet coverage found 60% in the L10K project areas of the four regions

Bed net ownership and use

- Two-thirds of the households surveyed from the four regions reported owning at least one bed net. Over 85% of the nets were permanent and very few (2%) owned pretreated nets and another 2% untreated nets. Status/type of the nets was unknown for 9%.
- Of those households residing in malarious areas and owning a bed net, 60% reported one or more family members slept under the net the night before the interview.

Family planning

- Half of the currently married women in the four regions reported that they have ever used a family planning method.
- The contraceptive prevalence rate (CPR) was 32% in the four regions. Injectables appeared the predominant method with a prevalence rate of 27%. Only 3% reported using Pills. Long acting and permanent methods make up only 1.5% and the traditional methods 0.3%.
- Health posts have become the major source for current contraceptors, as reported by about 60% of the women from the four regions. This was followed by heath centers at 22%.
- Breastfeeding and postpartum amenorrhea emerged as the leading reasons for not using a family planning method, as reported by 17% of the non-contraceptors for both. This was followed by being currently pregnant (11%), being fatalistic (8%) and health concern (7%).

Antenatal care (ANC)

- Over half of the women (54%) in the four regions received ANC for their most recent birth in the year preceding the survey; but only 20% had at least four visits.
- Health centers and health posts reported to be the major sources for the ANC, as reported by 52% and 32% of the women from the four regions, respectively.

Tetanus Toxoid Injection (TTI)

- About 42% of the women in the four regions received at least two TTI during pregnancy of their most recent birth last year.
- By combining information on the receipt of TTI from recent and previous pregnancies, 54% of the women from the four regions who gave birth during the past year can be considered protected against tetanus.

Delivery care

- In the four regions, the vast majority of the deliveries (91%) took place at home.
- The HEWs reported to have attended only about 4% of the deliveries that happened last year in the four regions.
- Trained traditional birth attendants (TBAs) assisted 8% of the deliveries, the untrained TBAs 12% of deliveries and 63% reported to have been assisted by families/friends/neighbors. Of note, about 5% of the women in the four regions reported self-assisted delivery.

Essential newborn care

- In the four regions, the majority (88%) of the mothers with children 0-11 months reported that they had used new/boiled blade to cut the cord during their most recent delivery last year.
- New or boiled string was reported to be used to tie the cord by 54%; 6% reported used string. About a quarter of the women in the four regions, however, reported that the cord was not tied.
- The stump of umbilical cord was left undressed in 71% of the deliveries. Butter was reported to be applied to the cord by 27% of the women.
- Three-quarter of the women reported that they had dried the baby before the placenta was delivered and an even higher percentage (89%) wrapped the baby before the placenta was delivered.
- Early bathing (i.e. before 6 hours) appeared to be common in the four regions with two-third of the babies reported bathed before 6 hours. Only 13% delayed first bathing for 2 days or more.

Breastfeeding

- Less than half (45%) of the mothers with children age 0-11 months from the four regions reported initiating breastfeeding within an hour after birth.
- The feeding of the first breast milk (colostrums) was reported at 43% in the four regions.

Postnatal care

- Postnatal care is virtually non-existent in the four regions, with less than 1% of the mothers reporting that they had received the care within 2 days after delivery from a health worker, 2% within 2-45 days.

Child Immunization

- Vaccine-specific coverage data indicate that PENTA 1, which is a proxy indicator to access to immunization, was received by 84% of the children.
- In the four regions, 64% of the children received PENTA 3 and the drop out rate from PENTA 1 to PENTA 3 was 26%.
- A little bit over two-thirds (68%) of the children age 12-23 months have been vaccinated against measles, which is one of the indicators designated in the MDGs.
- Based on the information either recorded on the card or reported by the mothers, 46% of children in the L10K project areas of the four regions are fully vaccinated.

Vitamin A coverage

- In the four regions, 87% of the children age 6-23 months received Vitamin A during the six months prior to the survey

Childhood illness and treatment practice

- About a tenth of the children age 0-23 months in the four regions had symptoms of ARI in the two weeks preceding the survey. Of these, about 36% were taken to health facility/provider for treatment.
- The 2-week prevalence of fever among children age 0-23 months was reported at 21% in the four regions. Mothers sought treatment in health facilities for 37% of the children with diarrhea.
- The 2-week prevalence of any diarrhea among children age 0-23 month was reported at 22%; bloody diarrhea at about 4%. Only 37% of such children were taken to health facilities for treatment.

Oral Rehydration therapy (ORT)

- Oral Rehydration Salt (ORS) was given to 24% of the children age 0-23 suffering from diarrhea in the 2-weeks prior to the survey and recommended homemade fluid (RHF) to 21%, while increased fluid was offered to 8% of such children.
- Oral Rehydration Therapy (ORT) encompasses ORS, RHF and increases in fluid. On the whole, 43% of the children with diarrhea in the four regions can be considered having received ORT.

Awareness of the danger signs of childhood illness

- Newborn danger signs that require seeking treatment in health facilities, as reported by mothers, include fever (85%), poor sucking or feeding (28%), vomiting (27%), and difficult/fast breathing (24%). Other danger signs were also reported by few of the mothers.
- For under-five children, fever appeared the most important danger sign mothers reported at 75%. This was followed by repeated vomiting (40%), repeated watery stool (40%), cough

(38%), not eating/drinking well (17%), difficulty breathing (12%), and fast breathing (11%) among few others.

Conclusion and selected programmatic recommendations

The conclusion drawn from findings of this survey is that reproductive, maternal, newborn and child health care lie within households, families, communities and health institutions. Therefore, addressing the various RMNCH issues certainly demands interlocking intervention efforts targeted at all levels—households, families, community, health workers and health institutions. While the main text provides specific recommendations in greater detail, below are the cross-cutting recommendations.

- Improve women's access to safe and clean delivery, essential newborn care and postnatal care services across the four regions. This survey found considerably wide gaps in these areas and indeed past intervention efforts to mitigate these critical health issues have been weak and staggering in the country.
- Promote the model family at a household level and increase community awareness and participation in the program. Ensure that women are well aware of the model family and participate actively in the program.
- Communities, and particularly vCHWs, have untapped potential to support the HEWs work in promoting primary health in rural Ethiopia. The health extension program should actively involve vCHWs to implement community mobilization and behavioral change activities at household and community levels.
- The HEWs' health promotion efforts appeared to have given more emphasis to the construction of pit latrines and personal hygiene. Whereas the achievement registered in these areas are commendable, it is also relevant to give due attention to the promotion of maternal, newborn and child health in the rural communities.
- The health posts need to be equipped to respond to the growing demand for services. Strengthening the logistics management system that includes vaccines, supplies and ensuring cold chain management and maintenance, contraceptive commodities, iron tablets, ORS and other essential drugs, etc. is critical.
- Referral linkages between health posts and higher institutions should be further strengthened.
- Equip HEWs with skills and improve their confidence in providing safe and clean delivery as well as postnatal care. Concomitantly, Health Posts should have the necessary equipments and supplies to deliver these services.
- BCC materials such as the family health card and Immunization certificate have proved to be effective in inducing good household health practices in relation to reproductive, maternal, newborn and child health. Ensuring families have access to such materials and utilize them properly is important.

BACKGROUND AND SURVEY OBJECTIVE

The Government of Ethiopia (GOE) embarked on the Health Extension Program (HEP) in 2005 to improve access to and equity of basic health services to the rural population through expanding physical health infrastructure (i.e., establishing a health posts) and training and deploying a cadre of female Health Extension Workers (HEWs). To date, the government has constructed over 15,000 health posts and trained about 32,000 HEWs. The HEP is based on the concept that providing the right knowledge and skills to households will lead to adoption of positive behaviors and ultimately improved community health outcomes. The HEWs identify, train and support model families and also work with their communities, including voluntary Community Health Workers (vCHWs), to produce better health and improve health outcomes.

The Last 10 Kilometers (L10K) Project which is implemented by JSI Research & Training Institute, Inc. (JSI) with funding by the Bill and Melinda Gates Foundation works 115 woredas[2] in four regions in Ethiopia; namely Amhara, Oromiya, Southern Nations, Nationalities and People's Region (SNNP), and Tigray (population of about 13 million) in support of the HEP. Specifically, the project aims to strengthen the bridge between households, communities, and the Government's HEP primarily by mobilizing families and communities to more fully engage to improve household and community health practices, ultimately leading to improved key reproductive, maternal, neonatal and child health (RMNCH) outcomes and contribute towards achieving MDGs 4 and 5 (i.e., decrease child and maternal mortality rates). In so doing, L10K provides technical support and grants programs to strengthen the capacity of existing local organizations, woredas, kebeles[3], and households in the intervention areas to fully contribute to improving Ethiopia's RMNCH outcomes.

The L10K project will be implementing a variety of innovative strategies to achieve its sub-goal, or the proof of concept, i.e., to improve the quality and increased demand, access and utilization of high impact RMNCH interventions. The project is mandated to document the learning and effectiveness of its innovative strategies in achieving its sub-goal and objectives in order to disseminate the findings among local, regional, national and international stakeholders and likeminded organizations that are interested in community solutions to achieving MDGs 4 and 5. It will implement M&E strategies including special studies to document the effectiveness of the L10K strategies.

The six main strategies to achieve the sub-goal and ultimately contributing to improve and sustain the maternal and child health in Ethiopia are:

- Households and kebeles actively engaged in the provision of kebele-based health services in conjunction with the HEP in order to increase availability of services and change household/kebele health practices.

[2] A woreda is a district, the second lowest administrative unit. The L10K project woredas encompasses 35 woredas in Amhara, 35 in Oromiya, 30 in SNNP, and 15 in Tigray. Other than the five urban woredas in Tigray, all the L10K woredas are rural.

[3] A kebele is the lowest administrative unit with a average population of about 5,000 people

- Households and kebele actively informing, leading, owning, planning, and monitoring their own maternal and neonatal health (M&NH) interventions.
- Households and kebeles address identified barriers to quality M&NH household/kebele health practices and services through innovative kebele approaches.
- HEWs, vCHWs, and model families motivated by non-financial incentives to provide M&NH services in a sustainable manner.
- Civil society partners capable of implementing grants program and building capacities of households and kebeles to participate in health programming with HEWs.
- L10K project partners learn, document, and disseminate project experiences through monitoring and evaluation.

To assess achievement of its sub-goal, the L10K project conducted a baseline survey to set the benchmarks for measuring changes in key RMNCH knowledge and behavioral outcome indicators and generate useful intervention for intervention. The baseline survey was conducted in collaboration with the federal ministry of health (FMOH), the regional health bureaus (RHBs), and the L10K implementing partners (i.e., 1st tier grantees). This report presents baseline findings.

SURVEY METHODOLOGY

Sample design

A two-stage cluster sampling methodology was employed to select kebeles as clusters to be included in the survey from the L10K project woredas of the four regions. A total of 204 kebeles were selected from the 4 regions (i.e. 50 from Amhara, 50 from Oromiya, 50 from SNNP and 54 from Tigray). Kebeles were selected using *probability proportional to size* (PPS). The sampling frame was constructed by obtaining the list of kebeles with their population size from the woreda health (or the administration) offices in the L10K project areas.

Survey Indicators

Several indicators within the context of the continuum of care of maternal, newborn, and child health were the focuses of the survey. The indicators concern interventions provided at the six critical health contacts, antenatal care including, Tetanus Toxoid, delivery care including newborn care, postnatal care and family planning, child immunization, child health and nutrition , childhood illness and treatment practices. All recommended interventions are described in each of the contacts, including the essential nutrition Actions (ENA). Information on household characteristics were also collected such as iodized salt, bed net possession, availability of household toilet facilities, clean water supply, among others. Indicators measuring population access to maternal and child health information and services have also been included. Community or kebele level indicators such as availability of health services (e.g. health post, health center), HEWs, vCHWs, whether the kebele is endemic to malaria, among others have also been the concern of the survey.

Survey target respondents

The survey focuses on 4 groups of respondents to generate the survey indicators. These are:

(1) Women in the reproductive age (15-49 years),

(2) Women with children age 0-11 months,

(3) Women with children age 12-23 months, and

(4) Health extension workers (HEWs)

Selection of households and respondents

The spin the pen/bottle technique has been used widely in household surveys to identify the starting point within a sample area. Spinning a ballpoint pen at the center of the community helps the survey team randomly choose a direction to follow. Interviewers were instructed to do the following to select households for the survey:

- Go to the population center of the cluster/kebele (the point in the kebele where the population is about equally distributed on all sides).
- Select a smooth, level spot where you can spin the pen.
- Spin the pen.
- Determine which direction the ballpoint of the pen is pointing. The survey team should go in the direction that the ballpoint of the pen is pointing.

- The first household in that direction is the starting household.

The procedure was that once the starting household has been identified, women age 15-49 years who were residing in every 5th household were interviewed using the 15-49 questionnaire until the desired sample size per cluster is achieved (i.e. 20). If these women also had children age 0-11 or 12-23 months, they would be interviewed using the 0-11 & 12-23 questionnaires. To get the desired sample size for the women with children 0-11 and 12-23 months, interviewers were instructed to visit consecutive households.

Survey Questionnaires

Four sets of questionnaires were used in accordance with the target respondents, as follows:

(a) Questionnaire for women in the reproductive age (15-49 years)

The respondents for this questionnaire were all women age 15-49 years whether or not they have children 2 years or younger. This questionnaire asked household and demographic characteristics; utilization of health services, bed nets, exposure to health information, family planning, and knowledge of HIV/AIDS.

(b) Questionnaire for women with children age 0-11 months

The respondents for this questionnaire were women with children age 0-11 months. On top of the general background characteristics, exposure to community level information and use of bed nets, this questionnaire also contained information on utilization of maternal health care services, delivery care, newborn care, breastfeeding, and childhood morbidity and treatment pattern.

(c) *Questionnaire for women with children age12-23 months*

The respondents for this questionnaire were women with children age 12-23 months. On top of the general background characteristics, exposure to information and use of bed nets, this questionnaire also collected information on child immunization, and childhood morbidity and treatment pattern.

(d) Community questionnaire

The respondents for this questionnaire were the HEWs operating in the kebeles sampled for the survey. Kebele-level information on health service availability and type, number of HEWs in the kebele, duration of service of the HEWs, availability and number of vCHWs, whether malaria is endemic in the kebele were collected. This questionnaire also asked about the type of training received by the HEWs, type of services provided by the HEWs, service availability, supportive supervision, collaboration between HEWs and other community actors (e.g. vCHWs, kebele administration, Community based Organizations), and availability of supplies and drugs in the health post.

The survey questionnaires were administered in three local languages—Amharic (in Amhara and SNNP), Oromifa (in Oromiya) and Tigregna (in Tigray).

Sample size

The sample sizes[4] for the three target respondents per region were: 1,000 for women age 15-49 years, 600 for women with children age 0-11 months and 500 for women with children age 12-23

[4] To estimate sample size for the survey, the assumptions and the parameters include:

Current family planning use: From baseline 23% to 30% at end of project

Mothers receiving at least 2TTI: From baseline 50% to 60% at end of project

Fully Immunized children: From baseline 34% to 49% at end of project

months. At each cluster the target sample sizes were—20 women in the reproductive age, 12 women with children 0-11 months and 10 women with children 12-23 months. Since a woman can respond to more than one questionnaire depending on whether she has a child age 0-23 months, the total number of individual women interviewed in the four regions of the L10K project areas were 6,277 (i.e. 1,724 from Amhara, 1,527 from Oromiya, 1,484 from SNNP, and 1,542 from Tigray).

Recruitment, training and fieldwork

The fieldwork was carried out by a number of survey teams, each team consisting of one field supervisor and four interviewers. Overall, in the four regions 89 interviewers, 30 supervisors, and 5 regional survey coordinators were deployed. The interviewers and supervisors were all health professionals working for regional health bureaus at zonal or woreda levels and were recruited in close consultation with the regional health bureaus. A total of 30 four-wheel drive vehicles were also used for the survey.

Training of the field staff was conducted in three sessions – Amhara and SNNP survey field teams were trained together in one session in Addis Ababa; the Oromiya team was trained in Jimma; and the team from Tigray was trained in Mekelle. The 5-day training in each of the sessions consisted of general introduction about the concepts and objectives of the L10K project, classroom instruction on interviewing techniques and filed survey procedures, a detailed review of each item in the questionnaires, specific survey instructions and role play. A one-day field practice was also part of the training. Survey supervisors and regional survey coordinators were given orientations on how to organize the survey, monitor and supervise the field work, on the techniques of detecting errors in the field and correcting them on spot, among others. The whole survey including the training period took about a month (from December 8, 2008 to January 17, 2009).

On the whole, the field work was completed on time as planned. Nevertheless, it has not been without problems, especially due to geographic inaccessibility. In some instances, the field team had to travel on foot for 3 or more hours to get to the selected cluster. Out of the 204 originally selected clusters, 8 had to be replaced due to extreme inaccessibility.

Data management and processing

Data entry was centralized at the L10K project office in Addis Ababa. Data were computerized using EPI-INFO. Post coding, office editing, and translation of the Oromifa and Tigregna open-ended responses were done in the office. Three experienced data entry clerks and 2 translators were involved. The data entry team was given orientation on the survey questionnaires, the nature of the data to be computerized, and the EPI-INFO data dictionary. In order to control for possible errors during data entry a number of checking mechanisms were employed including spot checking and running intermediate frequencies. A 5% double data entry was done and high level of concordance that exceeded 97% was achieved. Data analysis was performed using STATA version 10.

Presentation of survey results

Survey findings are presented separately for the L10K areas of each region and weighted for the entire L10K areas of the four regions. The analysis for this report is limited to descriptive, and univariate analyses. The main body of this report presents and discusses selected key indicators while a comprehensive list of the survey indicators are annexed for reference.

Power=80%; confidence level=95%; cluster survey design effect=1.5; the baseline estimates were obtained from Essential Services for Health in Ethiopia. 2008. Household End-line Survey Synthesis Report. John Snow, Inc. and UDAID, Addis Ababa.

RESPONDENT AND HOUSEHOLD CHARACTERISTICS

Respondent characteristics

Table 1 depicts selected background characteristics of survey respondents. The overall mean age of respondents from the four regions was 28 years, which compares well across the regions. The age pattern shows an inverted U shape with the majority (49%) fall under the age 25-34 years; 24% were in the age group 20-24 years.

Table 1: Percent distribution of respondents by selected background characteristics, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

Respondent characteristics	Amhara n=1,724	Oromiya n=1,527	SNNP n=1,484	Tigray n=1,542	Four regions (weighted) N=6,277
Age					
15-19	8.1	7.2	7.4	7.5	7.6
20-24	22.0	25.7	24.8	22.9	23.7
25-34	48.6	47.5	50.9	48.5	48.8
35-49	21.2	19.5	17.0	21.1	19.9
Mean age	28.0	27.5	27.3	28.7	28.0
Marital Status					
Currently in Union	91.6	96.5	97.4	81.9	93.0
Never married/not in union	8.4	3.5	2.6	18.1	7.0
Age at first marriage					
<15	58.7	7.9	10.1	14.3	30.9
15	13.2	23.2	18.4	16.1	17.1
16	6.1	14.3	13.5	10.5	10.2
17	4.8	10.7	12.8	8.1	8.4
18+	8.8	40.4	45.5	32.1	26.5
Never married	8.41	3.5	2.6	18.9	7.0
Education					
Cannot read or write	84.9	77.1	78.7	52.9	78.4
Read or write only	1.6	0.6	1.1	0.7	1.1
1-6 grade	9.9	15.7	13.7	20.5	13.3
7+ grade	3.7	6.6	6.5	25.9	7.3
Religion					
Orthodox	98.6	17.9	29.5	94.3	62.9
Moslem	0.9	56.5	29.1	4.6	21.4
Protestant	0.1	25.1	37.6	0.1	14.6
Others	0.4	0.5	3.8	1.0	1.1
Children ever born (CEB)					
0	4.1	2.0	1.5	2.1	2.8
1	17.5	17.6	16.9	22.7	17.9
2	16.1	15.4	15.7	19.3	16.2
3	14.5	15.9	13.1	16.7	14.7
4+	47.9	49.2	52.9	39.2	48.4
Mean CEB	3.7	3.8	4.0	2.6	3.8
Settings					
Rural	100.0	94.0	98.0	74.7	95.1
Urban	0.0	6.0	2.0	25.3	4.9

The vast majority of the women sampled (93%) were married and in union at the time of interview. The proportion married appeared the lowest in Tigray at 82% unlike the other regions in which at least 92% were reported to be married. The inclusion of urban areas in the Tigray survey where marriage is less prevalent might influence the marriage data in Tigray.

Early marriage can be well exhibited in the four regions with two-thirds reporting marrying for the first time before the age 18 years and 31% of them before 15 years. In particular, early marriage appeared much more pronounced in Amhara than any of the other regions with about 59% reporting marrying for the first time before the age of 15 years. This was reported in the range of 8% to 14% in the other regions. Of note, early marriage before the age of 15 years is less apparent in Oromiya and SNNP.

The majority of the respondents (78%) in the four regions cannot read or write. Respondents' educational status compares well across the three big regions – Amhara, Oromiya and SNNP. The recorded relatively higher education level in Tigray compared to any of the other regions is partly explained by the inclusion of urban women in the Tigray survey.

There was notable variation in respondents' religion across the L10K project areas of the four regions. In the Amhara and Tigray project areas the respondents were predominantly (more than 94%) orthodox Christians while in the Oromiya respondents were predominantly either Moslems (57%) or Protestants (25%). Overall, in the four regions 63% were orthodox Christians, 21% Moslem, 15% Protestants and the remaining comprise other religious groups.

The mean number of children ever born of the respondents was 3.8 children per woman and about half of the women (48%) already had given birth to 4 children— a reflection of high fertility in rural Ethiopia.

Household water supply and sanitation

Water supply

Overall, half of the women (50.4) in the L10K project areas reported to have a clean water supply (Table 2). A household is considered as having a clean water supply if its usual water source is either piped water or covered well or protected spring. There is significant variation in household access to clean water supply across the L10K project areas of the 4 regions with Tigray having the highest clean water supply coverage at 73, followed by SNNP (55%), Amhara (48%) and Oromiya (44%). The highest coverage in Tigray is partly attributable to the inclusion of urban kebeles in the survey (25% of the respondents in Tigray are from urban areas; see Table 1).

Irrespective of quality, the predominant sources of water supply to households in the L10K project areas in the four region was open spring (26%), followed by piped outside compound (22%), river (19%), covered well (14%) and protected spring (12%). Nearly three-quarter of the household reported that they had to spend less than 30 minutes to get water. Few had access to a water supply within their premises. Due to the inclusion of urban samples, the proportion that had access to water within their premises appeared relatively high in Tigray at 14%.

In general, treating water before drinking is rarely practiced in the four regions with 93% reporting not treating the water at all. This is important to emphasize in light of the fact that half of the households surveyed did not have access to a clean water supply.

Toilet facility

About 60% of the households in the L10K project areas of the four regions reported a toilet facility, 57% owned a pit latrine (Table 2). Thus, pit latrines/traditional pits comprise over 98% of the toilet facilities reported. Other types of facilities together make up only 1%. The highest coverage of toilet facilities was reported in SNNP at 85%, followed by Oromiya (70%), Tigray (60%) and Amhara regions (38%).

Table 2: Percent distribution of women by household source of water, time to collect water, water treatment practice, and type of toilet facility, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009.

Household characteristics	Amhara n=1,000	Oromiya n=1,000	SNNP n=1,000	Tigray n=1,080	Four regions (weighted) N=4,080
Source of drinking water					
Piped into dwelling	0.1	0.0	0.1	6.5	0.6
Piped into compound	0.2	0.5	0.3	10.9	1.2
Piped outside compound	21.3	9.8	34.9	30.1	22.2
Covered Well	21.5	7.0	5.5	24.5	14.1
Protected Spring	4.7	26.5	13.9	0.5	12.3
Open Well	4.9	1.3	2.6	3.6	3.2
Open Spring	25.8	32.1	21.8	19.3	26.2
River	20.1	22.1	18.1	3.8	18.6
Pond/Lake/Dam	1.2	0.1	2.0	0.1	1.0
Rainwater	0.0	0.1	0.1	0.2	0.1
Missing	0.2	0.5	0.7	0.0	0.4
Households with clean water supply[1]	47.8	43.8	54.7	72.5	50.4
Time to obtain drinking water					
Water on premise	5.5	0.7	0.9	13.8	3.5
<30 minutes	66.8	88.4	76.6	60.7	74.1
30 Minutes or Longer	27.7	10.9	22.5	25.5	21.1
Water treatment prior to drinking					
Not treated	96.1	89.8	89.6	92.7	92.7
Boil	0.6	3.4	3.4	2.6	2.2
Add bleach/chlorine	2.0	0.6	0.2	1.2	1.1
Strain it through a cloth	0.2	2.4	1.8	0.1	1.2
Use water filter	0.1	0.2	0.8	0.7	0.3
Solar disinfection	0.0	0.0	0.0	0.0	0.3
Let it stand and settle	0.0	0.2	0.5	1.5	0.1
Not specified/missing	1.0	3.4	3.7	0.5	2.1
Toilet facility					
Pit Latrine/traditional pit toilet	37.1	69.5	84.4	51.3	58.6
Ventilated improved pit latrine	0.4	0.3	0.8	4.4	0.7
Flush toilet	0.0	0.0	0.0	4.2	0.3
No facility/Bush/Field	62.5	30.2	14.8	40.1	40.4

[1]*this comprises - piped into dwelling, piped into compound, piped outside compound, covered well and protected spring*

Bed Net ownership and use

The question of availability of bed nets in the households was asked to all households. However, the computation of indicators concerning bed nets availability and use is restricted to areas that are known to be endemic to malaria. The community questionnaire that collected community characteristics provided information as to whether the particular kebele is endemic to malaria or not.

About 76 % of the women in reproductive age were from households in malarious areas (78% in Amhara, 82% in Oromiya, 70% in Oromiya and 74% in Tigray). Accordingly, 68% of the women from the four regions reported that their family owned at least one bed net (Table 3). Household possession of a bed net was confirmed by the survey interviewers. The number of nets per household reported to range between none and 6, with 27% of households owning only one, 34% two and 7% three nets or more.

The type of the most recently obtained bed net was assessed. Over half of the households (54%) in these areas owned permanent nets, which means the vast majority (over 85%) of the households with bed nets owned permanent nets. Whereas only 2% and 3% of the households owned pretreated and untreated nets, respectively. Interviewers were unable to identify the type/status of the most recently obtained bed net in 9% of the households.

Table 3: Percent distribution of women residing in malarious areas by ownership bed nets, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=780	Oromiya n=820	SNNP n=680	Tigray n=840	Four regions (weighted) N=3,120
Ownership of bed nets	76.7	59.7	65.6	60.0	67.5
Number of bed nets					
0	23.3	40.3	34.4	40.0	32.5
1	26.8	23.0	31.2	25.4	26.6
2	40.0	31.6	29.3	25.8	33.8
3+	9.9	5.1	5.1	8.8	7.1
Type of the bed nets[1]					
Permanent net (Permanent)	59.6	49.6	50.9	54.9	54.2
Pretreated net	3.9	0.4	1.8	2.5	2.2
Untreated net	1.1	4.8	3.1	0.5	2.6
Type unknown	11.9	4.8	9.8	2.1	8.5
No ITN in the house	23.3	40.3	34.4	40.0	32.5

[1]Most recently obtained ITN

Bed net use was assessed by asking if any family members slept under a bed net the night before the interview. Of those households residing in malarious areas and owning a bed net, 60% reported one or more family members slept under the bed net the night before the interview. Some variation can be noted across the region—from a high 71% in SNNP to 56% in Oromiya (analysis not given). In contrast, in about 40% of the households that owned a bed net it was reported that no one slept under bed net the night before the interview. This may well suggest that the mere possession of bed net does not necessarily imply use or being protected against mosquito bites and the risk of malaria infection.

Presence of iodized salt in household

Cooking salt fortified with iodine is essential to curb iodine deficiency disorders like goiter and certain neurological and mental disorders. The Ethiopian government has very recently adopted a long awaited policy to ensure that all cooking salt available in the markets is fortified with iodine. However, the L10K baseline survey was conducted before the policy was adopted. Nevertheless, the cooking salt in the households of women in reproductive age target population of the survey was tested for the presence of iodine using salt testing kits supplied by UNICEF. Salt containing 15 parts per million (ppm) of iodine is considered adequate to provide the daily requirements for iodine.

Only 1% of the women in reproductive age in the L10K areas were from households with adequately iodized cooking salt (Table 4). None of the households in Amhara had adequately iodized cooking salt while the highest proportion of households with iodized cooking salt was observed in Tigray (9%). The findings are consistent with a 2006 survey conducted by UNICEF.

Table 4: Percentage distribution of women in reproductive age according to iodine content in their household salt, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009.

Iodine content	Amhara (n=1,000)	Oromiya (n=1,000)	SNNP (n=1,000)	Tigray (n=1,080)	Total (N=4,080)
Salt not tested/missing	2.3	3.1	4.4	0.8	3.2
None (0 ppm)	96.0	89.7	87.4	63.2	88.6
Inadequate (<15 ppm)	0.7	7.0	7.8	26.7	7.0
Adequate (15+ ppm)	0.0	0.2	0.4	9.4	1.2

COMMUNITY CHARACTERISTICS AND ACCESS TO HEALTH MESSAGES AND SERVICES

Health services and health extension program coverage

Kebele-level health service availability and coverage with the health extension program were assessed (Table 5). At least one type of health facility was reported to be available in about 85% of the kebeles surveyed. Health posts were available in 70% of the kebeles sampled from the L10K project areas of the four regions. Higher facilities including health stations, health centers and hospitals were reported from 21% of the kebeles. Of note, about two-thirds of the kebeles only had health posts at the time of the survey and 5% had both health posts and higher facilities. There was notable variation in the availability of health facilities in the kebele sampled across the 4 regions. The proportion of kebeles served with a health post ranged from a high of 88% in Amhara to a low of 52% in Oromiya. On the other hand, Tigray appeared to have a relatively higher percentage of kebeles covered with higher facilities at 46%—which is not surprising because the sample included more urban kebeles. This was between 10% and 12% in the other regions.

Table 5: Percent distribution of kebeles sampled by availability of health facilities, number of health extension workers in the kebele and duration , L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009.

	Amhara n=49*	Oromiya n=50	SNNP n=50	Tigray n=54	Four regions N=203
Health facility in the kebele:					
None	8.2	38.0	8.0	5.6	14.8
Only Health Post in the kebele	79.6	50.0	82.0	48.1	64.5
Health post & higher facilities[1]	8.2	2.0	4.0	5.6	4.9
No health post but higher facilities[1]	4.1	10.0	6.0	40.7	15.8
Health extension workers (HEWs) in a kebele					
None	0.0	26.0	2.0	3.7	7.9
1	8.2	10.0	16.0	25.9	15.8
2	81.6	62.0	80.0	66.7	71.9
3+	10.2	2.0	2.0	3.7	4.4
At least 2 HEWs	91.8	64.0	82.0	70.4	76.4
	n=49	n=37	n=49	n=52	n=187
Year of service (HEWs)					
<1 year	8.2	8.1	22.5	21.2	15.5
1-2 years	10.2	29.7	18.4	9.6	16.0
2 or more years	79.6	54.1	53.1	63.5	63.1
Missing	2.0	8.1	6.1	5.8	5.4

**community data was not collected from one kebele;*

[1]higher facilities include health station, health center and hospitals

In the four regions 76% of the kebeles reported to have at least two health extension workers (HEWs) and 16% of the kebeles were served with only one HEW. Coverage with at least one HEW was reported at 92%. Of note, 26% of the kebeles in the L10K project areas of Oromiya region did not have a health extension worker at the time of the survey.

The data on duration of service of the HEWs indicated that about 63% served for 2 years or more, 16% for 1-2 years and 16% for less than a year. It appears that HEWs have been deployed for a relatively longer period in the L10K project areas of Amhara than any of the other regions. Eighty percent of the HEWs in Amhara reported to be in service for 2 years or more vis-à-vis 54% in Oromiya, 53% in SNNP and 64% in Tigray.

Volunteer community health workers (vCHWs)

For the purpose of this report "vCHWs" encompasses recently recruited vCHWs by the health extension program (HEP); the community-based reproductive health agents (CBRHAs) and the community health promoters (CHPs) who are operating in rural communities previously through support from development partners and recently being integrated into the HEP to support the HEWs efforts under their guidance and coordination. Whereas the CBRHAs are predominantly focusing on family planning promotion, distribution of pills and condoms and referring women in need of clinical family planning methods, the CHPs and vCHWs are by and large involved in the promotion of household child health care practices with some maternal health components included. We intentionally avoided making distinction between vCHWs, CHPs and CBRHAs in this report for the following reasons—first the HEP did not make any distinction between the two; secondly, in some kebeles an individual volunteer can serve as a CHP as well as a CBRHA.

In about 86% of the kebeles surveyed at least one vCHW was reported, ranging from 100% in Amhara to 94% in SNNP, 74% in Oromiya and 76% in Tigray (Table 6). On average, there were 13 vCHWs per kebele in the L10K project focus areas (ranging from none to 20+). Noteworthy, the L10K project kebeles in Oromiya reported to have the lowest numbers of vCHWs, averaging at 3. In the other regions, this ranges between 14 and 18 vCHWs per kebele.

Table 6: Percent distribution of kebeles sampled by number of volunteer community health workers (vCHWs) in the kebele and the mean number vCHWs per kebele, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=49*	Oromiya n=50	SNNP n=50	Tigray n=54	Four regions N=203
Number of volunteer Community Health Workers (vCHW)@ in a kebele					
None	0.0	6.0	2.0	13.0	5.4
1-4	6.1	68.0	16.0	7.4	24.1
5-9	12.2	4.0	20.0	9.3	11.3
10-19	24.5	0.0	38.0	31.5	23.7
20+	57.1	2.0	20.0	27.8	26.6
Missing data	0.0	20.0	4.0	11.1	8.9
Mean number of vCHWs per kebele	17.9	3.0	13.9	14.8	12.8

*Community data was not collected from one kebele

@Community based reproductive health agents (CBRHAs) or community health promoters (CHPs)

Information from Health Extension Workers

This survey found that coverage with at least one HEW reached nearly 93% in the L10K project areas in the four regions, and that out of the 204 kebeles sampled, HEWs were present in 187 kebeles. Women were asked if they knew or heard of HEWs, and about 71% responded affirmatively to this question. Women's awareness of the presence of HEWs in their kebeles appeared to vary across the regions—from 49% in Tigray to 80.8% in SNNP (Table 7).

About 36% of the women reported being contacted by the HEWs who talked to them about their health and that of their children in the 6 months prior to the survey. Women were also asked to spontaneously mention any message they heard from or were told by the HEWs in the most recent visit during the last 6 months. In general, there appears to be a greater emphasis on personal hygiene and promotion of pit latrine construction and use by the HEWs. Among those women who reported contact with HEWs in the last 6 months, the majority (59%) reported having received promotional messages on pit latrine construction, 54% on personal hygiene, and 52% on latrine use. The receipt of messages concerning safe water use was reported by 20% of the women and 19% reported being informed about immunization by the HEWs. Family planning information was received by 17% of the women. A tenth said they were informed about child nutrition. Health messages on pregnancy care, treatment practices for sick children, HIV/AIDS, and others are less likely to be dealt with by the HEWs.

Table 7: Percentage of respondents who are aware of HEWs, who were contacted by HEWs, and the information received from HEWs, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=1,724	Oromiya n=1,527	SNNP n=1,484	Tigray n=1,542	Four regions (weighted) N=6,277
Heard of HEWs	78.8	59.5	80.8	49.2	71.4
Contacted by HEWs at home (last 6 months)	38.1	30.8	39.9	30.0	35.8
Information received from HEWs (last 6 months)	n=657	n=471	n=594	n=462	N=2,184
Information on Immunization	27.8	4.0	6.6	33.7	18.6
Information on child nutrition	9.4	8.1	11.9	16.0	10.3
Information on diarrhea treatment	2.1	3.2	3.0	9.2	3.2
Information on pregnancy care	2.4	4.9	4.5	14.6	4.6
Information on HIV/AIDS	2.6	4.0	7.9	19.1	5.4
Information on hygiene	43.5	49.6	70.6	72.1	54.0
Promotion pit latrine construction	62.2	61.7	45.5	75.5	59.4
Promote latrine use	45.9	56.1	54.2	68.6	52.0
Promote safe water use	18.4	21.2	15.8	36.0	20.0
Information on family planning	16.0	19.3	11.6	23.8	16.6

Model family

One of the components of the HEP is the promotion of model families in the community. For a household to graduate as a model family, one has to go through a number of steps and perform activities, which are part of the primary health package of the HEP. Model families are believed not only to change their own behaviors, but also influence their neighbors and thereby the larger community for improved health outcome.

In general women's awareness of the model family can be considered low with only 19% reported ever having heard of a model family (Table 8). Only very few of the respondents (4%) reported their family graduated as a model family, of which only half presented certification to the interviewer. On the other hand, about 6% are working towards becoming a model family.

A high willingness to participating in the model family program can be noted, as reported by 87% of the women who had heard about the program but were not part of it.

Table 8: Percent of women who heard about a Model family and the percent distribution of women according to the participation in the Model family program, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=1,724	Oromiya n=1,527	SNNP n=1,484	Tigray n=1,541	Four regions (weighted) N=6,277
Heard of Model Family	26.2	2.0	18.0	27.9	18.5
Family Graduated as a Model family					
Yes, Certificate seen	2.4	0.1	2.3	3.0	1.9
Yes, Certificate not seen	2.0	0.2	2.6	4.2	1.9
Working toward	9.3	0.9	2.4	8.5	5.6
Not at all	86.2	98.7	92.6	83.8	90.5
Missing	0.2	0.1	0.1	0.5	0.2
Wants to become a model family (among those who heard of model families)	n=452 87.5	n=30 83.3	n=265 87.7	n=451 80.8	N=1,198 86.5

Utilization of health post

Women's use of health services, especially health posts, was assessed by asking women whether they had visited a health post at least once in the year preceding the survey (Table 9). Recently, there has been a massive expansion of health posts throughout the country and coverage reached about 70% in the L10K project areas, as depicted by this study. Two female HEWs are deployed in a health post to provide basic and essential promotive, preventive and selected curative services which include but are not limited to hygiene, family planning, child and maternal and child health and nutrition services.

In the four regions, a little over half of the women (53%) said they had visited a health post at least once last year. The major reasons for visiting the services, as reported by the women, included child immunization (60%), family planning (35%), and antenatal care (20%) and to seek treatment for malaria (15%). Other reasons reported by few of the women include referral for sick child, health education, treatment for diarrhea, treatment for pneumonia, postnatal care among few others. Health post utilization patterns and reasons for seeking care compare well across the four regions.

Table 9: Percent of women who visited health post (last year) and reason for visiting a health post, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=1,724	Oromiya n=1,527	SNNP n=1,484	Tigray n=1,541	Four regions (weighted) N=6,277
Visited health post (last year)	49.6	50.2	52.4	61.7	52.6
Reasons for visiting health post	n=855	n=767	n=778	n=951	N=3,351
Family planning	39.9	30.4	35.2	24.5	34.9
Child immunization	56.6	54.6	69.9	63.8	60.1
Antenatal care	10.4	25.0	22.0	41.8	20.3
Postnatal care	0.8	5.6	1.2	4.1	2.5
Health education	5.2	4.8	8.3	3.4	5.6
Growth monitoring	1.7	1.1	1.1	6.9	2.1
Referral of sick child	4.9	9.3	4.7	31.3	9.1
Diarrhea treatment	2.6	7.7	1.8	4.7	3.9
Malaria treatment	16.2	24.6	8.0	4.8	15.1
Pneumonia treatment	2.1	5.8	0.8	2.3	2.8
Receive or buy bed nets	0.8	0.0	1.2	1.0	0.7
Delivery care	0.5	1.1	0.4	2.4	0.8
Neonatal care	0.7	0.7	0.4	1.0	0.7

Information from volunteer community health workers

As discussed above, about 89% of the kebeles surveyed reported to have at least one vCHW. Despite this, most women seemed unaware of the presence of vCHWs in their community. Only 36% of the women reported that they heard of or knew about vCHWs and 15% reported being contacted by vCHWs last year (Table 10). Women in Tigray appeared relatively well aware of the presence of vCHWs in their community as well as more likely than women from the other regions to be contacted by the vCHWs.

Table 10: Percent of women who were aware of vCHWs, visited by vCHWs, and information received from vCHWs, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=1,724	Oromiya n=1,527	SNNP n=1,484	Tigray n=1,541	Four regions (weighted) N=6,277
Heard of vCHWs	38.0	26.9	28.5	61.9	35.7
Contacted by vCHWs at home (last 6 months)	19.6	6.7	9.5	32.3	15.3
Information received from vCHWs	n=338	n=103	n=141	n=498	n=1,080
Information on Immunization	70.6	63.7	41.8	53.0	62.2
Information on child nutrition	7.2	9.8	9.2	19.4	10.4
Information on diarrhea treatment	2.4	7.8	5.0	12.6	5.5
Information on pregnancy care	3.0	7.8	2.8	16.1	6.3
Information on HIV/AIDS	3.6	6.8	4.9	19.7	7.6
Information on hygiene	29.3	24.5	54.6	67.7	40.4
Promotion pit latrine construction	47.6	24.5	45.4	59.2	47.3
Promotion on latrine use	32.0	22.6	43.3	48.7	36.0
Promotion on safe water use	13.8	14.7	15.6	30.3	17.6
Information on Family planning	14.3	36.9	9.2	29.8	19.4

The information received from vCHWs by women mainly revolved around child immunization (62%), promotion of pit latrine construction (47%), personal hygiene (40%) and latrine use (36%). Among the women contacted by vCHWs last year, 19% reported having received information on family planning. Although the type of health messages that were received from vCHWs followed similar patterns across the four regions, women in Tigray tended to receive a wider range of health messages from the vCHWs than those from any of the other regions.

Exposure to behavioral change communication (BCC) materials at the household-level introduced by Essential Health Services in Ethiopia (ESHE) project—mainly family health card and immunization diploma—was also accessed and the analysis is presented in Table 1A of the appendix.

FAMILY PLANNING, MATERNAL, NEONATAL AND CHILD HEALTH

There is a recent paradigm shift from attention to the individual child or mother to focus on the continuum of care from before pregnancy, through to pregnancy, childbirth, & newborn, the postnatal period, and on to early childhood (health, nutrition and illness). The continuum of care framework is also extended to encompass referral linkages within and across facilities. The survey did not collect information on referral linkages and this section is limited to the other facets of the continuum of care, which includes, family planning, antenatal care, delivery, postnatal & newborn care, child immunization, child health and child illnesses.

Family planning

Knowledge of family planning methods and sources

Table 11 presents the extent of knowledge of women about family planning and the source of information. The proportion of women who ever heard of family planning methods was 89.4% in the four regions. Respondents were also asked the source of information about family planning methods and that 81.5% reported at least one source. Health posts and health centesr were reported by 57.7% and 50.3% of the women, respectively, as the places where family planning methods can be obtained. In Tigray apart from health centers and health posts, 20.7% of the women reported government hospitals. This may partly due to the inclusion of urban women in the Tigray survey. In contrast, the reporting of hospitals, as a source for family planning method, was less than 8% in the other regions.

Table 11: Percentage of women in reproductive age who know any family planning, and know where to obtain method, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009.

	Amhara n=1,000	Oromiya n=1,000	SNNP n=1,000	Tigray n=1,080	Four regions (weighted) N=4,080
Heard of any family planning method	92.3	86.7	85.3	94.2	89.4
Know places where to obtain a family planning method	84.8	77.2	76.9	89.0	81.5
Knowledge on places/persons where to obtain method:					
Government hospital	5.7	7.8	5.1	20.7	7.8
Health Center	56.1	36.8	46.8	68.1	50.3
Health Post	72.0	39.9	60.2	43.4	57.7
CBRHA	1.5	3.9	0.1	4.4	2.1

Ever and current use of family planning methods

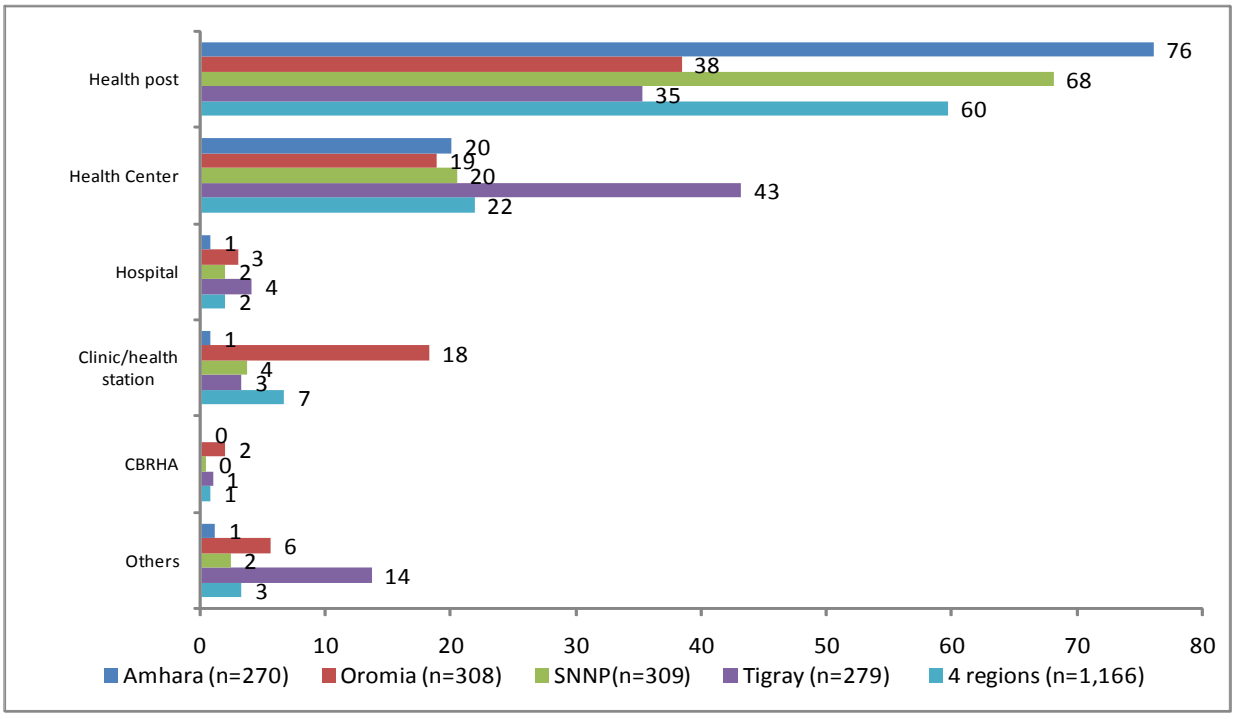
Table 12 presents ever-and current-use of family planning methods among currently married women in reproductive age in the L10K project areas, by region. Data show 51% of the women in the L10K areas reported that they have ever used a family planning. The overall contraceptive prevalence rate (CPR) in the L10K areas was 32%, and compares well across the four regions. Injectables appeared

to be the predominant contraceptive method with a prevalence rate of 27%. Thus, the contribution of injectables to the overall CPR is about 86%. Pills prevalence is only 3%. Less than two percent of the married women in reproductive age are using long acting and permanent methods even though 40% of the women do not want any more children (see Table 2A in the appendix for the analysis on fertility preference). The contraceptive prevalence for traditional methods is 0.3%.

Table 12: Percentage of currently married women in reproductive age who ever used family planning, and currently using family planning, by type of method, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009.

	Amhara n=881	Oromiya n=957	SNNP n=971	Tigray n=884	Four regions (weighted) N=3,693
Ever used any method	51.9	48.8	48.2	55.4	50.5
Currently using any method	30.9	32.5	32.0	32.8	31.8
Currently using any modern method	30.8	32.0	31.9	32.3	31.6
Injectables	28.1	26.3	26.3	26.3	27.2
Pill	1.0	3.8	3.1	4.4	2.6
Norplant	1.6	1.5	1.2	0.4	1.3
IUCD	0.2	0.2	0.2	0.0	0.2
Currently using any traditional methods	0.1	0.5	0.1	0.5	0.2
Rhythm method	0.1	0.0	0.0	0.1	0.0
LAM	0.0	0.5	0.1	0.4	0.2

Figure 1: Percent distribution of current (modern) family planning users according to source of current method, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009.



Source of current method

Health posts have become the major source for current contraceptors, as reported by about 60% of the women from the four regions. This was followed by heath centers at 22% (Figure 1). In particular, the majority of the women from Amhara (76%) and SNNP (68%) reported to have

obtained their current method from a health post. In Tigray, health centers reported the leading source of current methods (43%) followed by health posts (35%). Next to health posts women in Oromiya reported clinics/health stations as the source for their current method.

Reason for non-use

Among women not using family planning, the main reasons were assessed (Table 13). Currently breastfeeding and postpartum amenorrhea emerged as the leading reasons (17% each). This is followed by being currently pregnant (11%), being fatalistic (8%) and having a health concern (7%). Some 5% reported knowing no source for family planning as the main reason for not using a method. Husband's/partner's disapproval (4%), menopause (4%), not having sex (4%), fear of side effects (3%) and wanting a child soon (3%) were also implicated among the main reasons for not practicing family planning. Physical or financial access to family planning services did not come out among the main deterrents for not using a family planning method. Of note, 11% did not mention any reason.

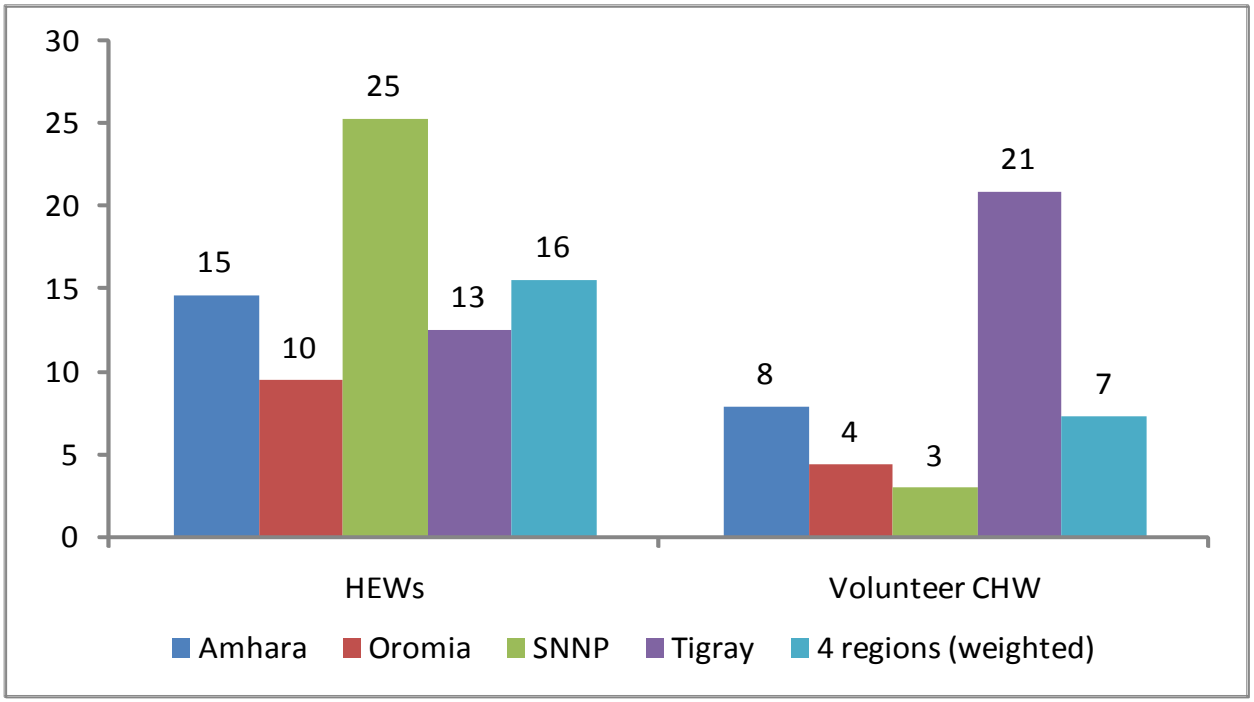
Table 13: Percent distribution of currently married women who were NOT using family planning method by their reason for not using any method, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009.

	Amhara n=603	Oromiya n=640	SNNP n=658	Tigray n=586	Four regions (weighted) N=2,487
Reason for not using family planning among					
Not having sex	4.8	2.5	2.7	3.2	3.5
Infrequent sex	0.8	1.3	0.5	1.2	0.9
Menopausal	5.5	4.7	2.0	1.5	4.0
Subfecund/infecund	0.2	0.4	0.0	0.2	0.2
Postpartum amenorrheic	19.9	16.3	17.0	5.5	16.8
Breastfeeding	14.4	15.8	13.8	37.7	16.9
Fatalistic	9.3	5.9	6.2	10.9	7.6
Respondent opposed	0.7	1.7	1.0	1.8	1.2
Husband/partner opposed	1.7	3.9	9.9	2.1	4.4
Others opposed	0.0	0.5	0.3	0.0	0.2
Religious prohibition	2.3	5.2	0.6	3.1	2.7
Knows no source	2.5	6.3	7.8	2.1	4.8
Method not available	0.0	1.3	0.3	4.3	0.9
Lack of access/too far	0.0	0.3	0.4	0.0	0.2
Cost too much	0.2	0.0	0.0	0.0	0.1
Health concern	8.8	4.2	7.3	4.3	6.8
Fear of side effects	1.7	5.2	3.3	3.1	3.2
Inconvenient to use	0.0	1.6	0.9	0.3	0.7
Interferes with body's normal process	0.2	0.0	0.6	0.5	0.2
Respondent want to have child soon	5.5	0.3	1.5	1.9	2.7
Respondent Pregnant	11.0	11.1	10.6	7.1	10.6
Reason Not specified	10.5	11.5	13.3	9.2	11.4

Information on family planning

Women were asked if they were contacted by HEWs or vCHWs last year who discussed family planning (Figure 2). In the four regions of the L10K project areas, 16% and 7% of the women, respectively, reported being contacted by HEWs and vCHWs who talked to them about family planning. Women from SNNP were more likely than others to have received information on family planning from HEWs last year—25% in SNNP versus between 10% and 13% in the other regions. On the other hand the receipt of family planning information by women from vCHWs appeared significantly better in Tigray (21%) than any of the other regions (between 3% and 8%).

Figure 2: Percent of women who reported being visited by HEWs and VCHWs at home that discussed family planning last year, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009



Other indicators related to family planning programming that were analyzed and given in the appendix are wantedness of the current pregnancy (Table 3A), contact of non-users with family planning providers (Table 4A), and intention to use family planning among in the future (Table 5A).

Antenatal Care (ANC)

ANC coverage and number of ANC visits

In this survey, each woman who has a child aged 0-11 months was initially asked whether she had gone for ANC check-up to a health institution when she was pregnant with the child. Next she was asked how many such visits she made. Table 14 shows that 54% of the women interviewed in the four regions received ANC for their most recent birth in the year preceding the survey. There was significant variation in the receipt of ANC by regions, Tigray having the highest coverage at 84%, followed by SNNP (62%), Oromiya (55%), and Amhara (40%). The highest ANC coverage in Tigray is partly due to the inclusion of urban areas in the Tigray survey.

The numbers of antenatal care visits are important for the health and outcome of the pregnancy. However, in this study only 20% of the women in the four regions received the recommended four ANC visits during pregnancy. Likewise, Tigray women appeared more likely than others have received at least 4 ANC visits.

Table 14: Percentage distribution of women with children age 0-11 months according to receipt of antenatal care services (ANC), percent distribution of ANC users by place of ANC, and the percent of women who received ANC services according to the content, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=600	Oromiya n=600	SNNP n=600	Tigray n=648	Four regions (weighted) N=2,448
Received ANC in health facility	40.0	55.3	62.0	84.2	54.3
Number of ANC visits					
None	60.0	44.7	38.0	15.8	45.7
1	14.0	8.3	4.6	3.7	9.2
2	11.2	9.3	8.4	10.4	10.0
3	7.5	15.3	16.5	23.5	13.4
4+	7.0	21.5	30.5	42.9	20.0
Missing	0.3	0.9	2.0	3.7	1.7
Among antenatal care users	n=242	n=332	n=372	n=549	N=1,495
Place of ANC					
Government hospital	3.7	6.6	1.9	3.3	3.9
Health Center	67.8	44.0	43.0	53.1	52.3
Health Post	24.8	21.4	49.2	35.6	32.3
NGO health facility	0.0	5.1	3.2	5.2	3.1
Private health facility	2.9	5.7	2.7	1.6	3.4
Others	0.8	17.2	0.0	1.2	5.0
Antenatal care Contents					
Weight measured	56.2	73.5	76.6	88.4	71.9
Height measured	37.2	53.0	48.1	67.5	49.6
Blood pressure measured	58.7	73.8	82.5	87.0	74.0
Urine sample given	14.1	20.2	14.5	33.6	19.3
Blood sample given	23.1	25.9	29.6	41.0	28.7
Received anti-malarial	9.9	6.6	10.5	7.7	8.8
Received Iron tablet	24.4	10.5	14.8	26.6	18.6

Place of ANC

Health centers and health posts were reported to be the major sources for the ANC, as reported by 52% and 32% of the women from the four regions, respectively. Only about 4% of the women reported government hospitals as a place where they received ANC, 3% from private facilities. Places for the ANC compared well across the four regions.

Contents of ANC

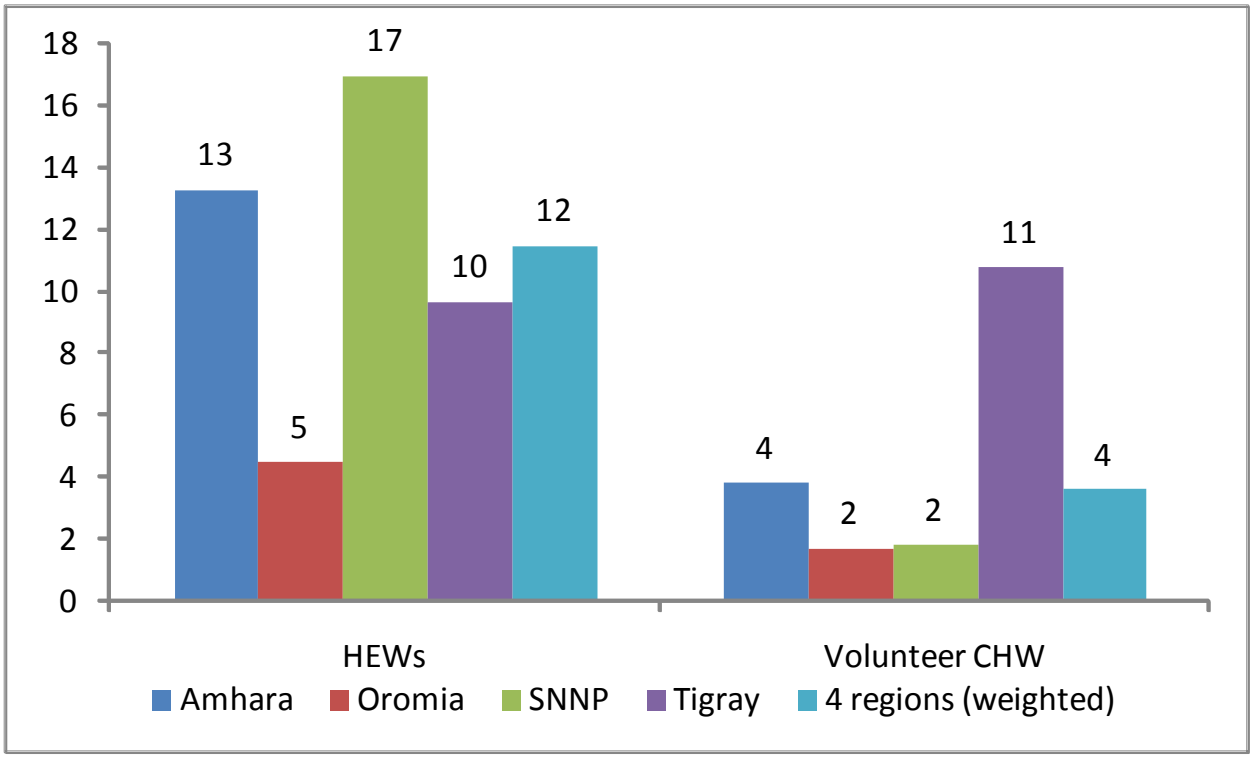
The content of antenatal care is vital in evaluating its value. In order to identify and prevent possible complications during pregnancy and childbirth, screening for complications should be routinely included in all antenatal care visits. The provision of iron tablets and anti-malarial drugs during pregnancy as deemed necessary is highly recommended. To help assess the contents of the ANC services, respondents were asked about whether they had had certain screening tests and also given some of the treatments during at least one of the antenatal visits. As shown in Table 13, among those women who received ANC, 72% and 50% of them reported that they had their weight and

height measured, respectively. Blood pressure measurement was performed for most pregnant women (74%). Only 19% and 29% of the women gave urine and blood samples, respectively. Anti-malarial drug and iron tablets were prescribed to 9% and 19% of the pregnant women, respectively. Of note, pregnant women from Tigray appeared to have better access to the key contents of ANC as compared to their counterparts in the other regions.

Information during pregnancy

Women were asked if they were visited by HEWs or vCHWs during pregnancy last year who discussed issues on pregnancy care (Figure 3). Overall, in the four regions only 12% and 4% of the mothers with children age 0-11 months reported being contacted by HEWs and vCHWs, respectively, during pregnancy of the index child. There was significant variation in the proportion of women contacted either by HEWs or vCHWs across the regions.

Figure 3: Percent distribution of women with children 0-11 months, according to contact by HEWs, and VCHWs during their most recent pregnancy (last year), L10K projects, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009



Tetanus Toxoid Injection (TTI)

Pregnant women who are up to date on tetanus toxoid during pregnancy are nearly 100 % protected against tetanus for their newborn and themselves. Two doses of tetanus toxoid during a first pregnancy offer full protection. However, if a woman was vaccinated during a previous pregnancy, she may only need a booster to give full protection. Five doses at the appropriate intervals provide lifetime protection. In this survey, each woman with a child age 0-11 months was asked if she received TT during her most recent pregnancy or any time prior to the last pregnancy, and, if so, she was further asked the number of injections and when was the last injection given. This information is used to calculate the proportion of newborns that are protected from neonatal tetanus. According to the goal set at the World Summit for Children; if the mother reports receiving at least two TTI during her lifetime, the last of which occurred less than 3 years ago, or if she received at least 3 TTI

during her lifetime, the last of which occurred in the last 10 years OR if she has received at least 5 TTI during her lifetime, then she is considered as 'protected against neonatal tetanus'.

As shown in Table 15, 57% of the women in the four regions received at least one TTI during pregnancy of the most recent birth last year; 42% at least two doses. Overall, in the four regions 54% of the women with children age 0-11 months can be considered that their last birth was protected against neonatal tetanus. Forty two percent reported receiving at least two doses of TTI, the last of which occurred within the last three years while 9% received at least 3 doses, with the most recent one occurring within the last 10 years. Only 2% of the women received at least five doses of TTI during their lifetime. The proportion of women protected against tetanus though significantly higher in Tigray can be compared well across the regions.

Table 15: Percentage distribution of women according to receipt of TTI during most recent pregnancy and those protected against neonatal tetanus, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=600	Oromiya n=600	SNNP n=600	Tigray n=648	Four regions (weighted) N=2,448
TTI during the pregnancy (last year)					
None	44.1	43.6	42.3	35.6	42.7
1	18.5	16.5	16.9	16.5	15.8
2+	37.4	39.9	46.8	47.9	41.5
Protection against Neonatal Tetanus:	52.3	45.8	56.7	68.5	53.5
Received 2+ doses, last within 3 yrs	37.8	40.3	46.8	50.5	42.0
Received 3+ doses, last within 10 yrs	12.5	3.0	8.2	15.5	9.4
Received 5+ doses during lifetime	2.0	2.5	1.7	2.5	2.1

Analyses of some of the other indicators of health care behavior and utilization during pregnancy are given in the appendix. These include pregnant women sleeping under bed nets in the malarious areas (Table 6A); contact with any community health worker during pregnancy and the topics discussed during the contact (Table 7A); if the women took iron supplementation, drugs for intestinal parasite, and drugs to prevent malaria in the malarious areas (Table 8A).

Delivery Care

Women with children age 0-11 months were asked where they delivered and who assisted them during the delivery. In the four regions, the vast majority of the deliveries (91%) took place at home (Table 16). Institutional delivery appeared significantly higher at 24% in Tigray compared to any of the other regions where only between 5% and 9% of the deliveries had happened in health institutions. Table 16 also presents information on assistance during delivery. Professionally assisted delivery can be considered very low in all the four regions at 8%—24 % in Tigray, 9% in Oromiya and SNNP, and as low as 4% in Amhara. The HEWs reported to have attended only 4% of the deliveries in the four regions. Trained traditional birth attendants assisted 8% of the deliveries, the untrained TBAs 12% of deliveries and 63% reported to have been assisted by families/friends/neighbors. Of note, 5% of the women in the four regions reported self-assisted delivery; this was as high as 10% in Oromiya.

The analyses of the indicators regarding birth preparedness and the knowledge of mothers regarding the danger signs during childbirth are is given in Tables 9A and 10A of the appendix.

Table 16: Percentage distribution of women with children age 0-11 months according to place of delivery, and assistance during delivery, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=600	Oromiya n=600	SNNP n=600	Tigray n=648	Four regions (weighted) N=2,448
Home delivery	95.3	90.8	91.0	75.6	90.8
Institutional delivery	4.7	9.2	9.0	24.4	9.2
Assistance during delivery					
Health professional	3.7	9.2	8.8	24.0	8.7
Health Extension Workers	3.5	2.4	4.0	6.2	3.6
Trained traditional birth attendant	9.2	6.2	6.8	11.9	8.2
Untrained traditional birth attendant	17.7	6.0	13.3	1.1	11.7
Families/friends/neighbors	64.0	66.7	62.2	55.7	63.3
No one	1.9	9.5	4.9	1.1	4.5

Newborn Caretaking Behaviors

The World Health Organization's (WHO) guidelines for essential newborn care include the following: hygiene during delivery, keeping the newborn warm, early initiation of breast-feeding, exclusive breast-feeding, care of the eyes, care during illness, immunization and care of low birth-weight newborns[5]. Therefore it is necessary for the mother and her family to understand these aspects of childbirth and newborn care and be prepared to react for the potential dangers signs.

In this section, some of the key elements of essential newborn care are presented, which include the instruments used to cut and tie the cord, the timing of first bathing, the dressing, if any, applied to the umbilical cord, the keeping of the baby warm, and breastfeeding. Women were asked of these different practices in relation to their most recent child age 0-11 months (Table 17).

Instrument used to cut and tie the cord

It is highly recommended to use a sterile instrument to cut and tie the umbilical cord. In the four regions, the majority (88%) of the mothers with children 0-11 months reported that they had used a new/boiled blade to cut the cord during their most recent delivery within the year preceding the survey. Scissors were reported among the materials to cut the cord by 8% of the mothers in the four regions. The reporting of scissors was particularly high in Tigray at 20%. In other regions this was reported between 5% and 9%. It is unknown whether the scissors reported were new, used or boiled. New or boiled string was reported by 54% of the mothers to tie the umbilical cord and 6% reported used string to tie the cord. About a quarter of the women in the four regions, however, reported that the cord was not tied. In Amhara this was as high as 45% followed by 26% in Oromiya; however, less than 4% did not tie the cord in SNNP and Tigray regions.

Dressing applied to umbilical cord

It is not advisable to apply dressing to the umbilical cord. Women were asked if they had applied any dressing to the umbilical cord for their most recent delivery last year. Finding show (Table 17), the stump of umbilical cord was left undressed in 71% of the deliveries. Butter was reported to be applied to the cord by 27% of the women. Applying butter to the cord is notably high in Tigray (42%) and Amhara (35%).

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

Table 17: Percentage distribution of women with children age 0-11 months according to instruments used to cut and tie the cord, timing of bathing, and the percent who dried the baby and wrapped the baby before the placenta delivered, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=600	Oromiya n=600	SNNP n=600	Tigray n=648	Four regions (weighted) N=2,448
Instrument used to cut the cord					
New/boiled blade used to cut the cord	91.3	88.5	88.3	75.8	88.1
Used blade	0.5	0.3	0.2	0.6	0.4
Scissor (status unknown)	4.0	8.0	9.5	20.3	8.2
Do not know/missing	4.2	3.2	2.0	13.3	3.3
Instrument used to tie the cord					
New/boiled string used to tie the cord	41.2	53.2	60.7	84.2	53.7
Used string	2.3	14.1	3.3	7.5	6.2
Did not tie cord	44.7	25.6	3.2	3.5	25.4
Do not know/missing	11.8	7.1	32.8	4.8	14.7
Dressing applied to umbilical cord					
Nothing	60.5	80.2	86.5	58.3	71.4
Butter	35.3	19.3	13.3	41.7	26.8
Ointment/powder	4.2	0.5	0.2	0.0	1.8
Warming the baby:					
Baby dried before the placenta delivered	76.2	74.3	71.2	75.7	74.5
Baby wrapped before the placenta delivered	92.8	89.5	85.7	80.3	88.9
Frequency of skin-to-skin contact					
Always	31.8	70.0	53.5	24.4	45.9
Often	35.3	16.7	22.5	33.4	27.3
A few times	23.8	11.2	10.7	25.6	17.7
Never	6.2	1.8	13.3	15.1	7.7
Don't know/missing	2.8	0.3	0.0	1.6	1.4
Time to first bathing:					
<6 hours	58.5	80.5	66.8	54.2	65.6
6-12 hours	5.5	2.3	4.3	5.1	4.4
12-24 hours	2.5	1.0	1.0	5.9	2.2
1-2 days	9.0	8.0	10.3	12.5	9.4
2-3 days	5.0	1.0	3.3	4.6	3.5
3 days or more	16.2	1.5	5.0	11.9	9.3
Do not know/missing	3.3	5.7	9.3	5.8	5.6

Maintenance of warm chain for the newborn

Thermal protection of the newborn is the series of measures taken at birth and during the first days of life to ensure that the baby does not become either too cold (hypothermia) or too hot (hyperthermia) and maintains a normal body temperature of 36.5-37.5°C (97.7-99.5°F). The "warm chain" is a set of ten interlinked procedures carried out at birth and during the following hours and days which will minimize the likelihood of hypothermia in all newborns. At birth, the newborn should be immediately dried and covered, before the cord is cut. While the baby is being dried, s/he should be on a warm surface such as the mother's chest or abdomen (skin-to-skin contact). Skin-to-skin contact with the mother is the best way of keeping the baby warm. If this is not possible, alternative means of preventing heat loss and providing warmth—such as wrapping the newborn

baby and putting it in a warm room or under a radiant heater—will be necessary. Bathing and weighing the baby should be postponed[6]. This survey assessed some of the elements relevant to the warm chain, as presented below (Table 17).

Drying and wrapping of the baby

The majority of women (75%) reported that they had dried the baby before the placenta was delivered and an even higher percentage (89%) wrapped the baby before the placenta was delivered. These practices appeared to be common across the four regions.

Time to first bathing:

According to the WHO, bathing the newborn soon after birth causes a drop in the baby's body temperature and is not necessary. If cultural tradition demands bathing, this should not be carried out before 6 hours after birth, and preferably on the second or third day of life so long as the baby is healthy and its temperature is normal. In this survey, most babies (66%) were reportedly bathed before 6 hours. Early bathing (i.e. within 6 hours) was exceptionally high in Oromiya at 81%. In the four regions, only 13% delayed first bathing for 2 days or more.

Skin-to-skin contact

The reporting of the frequency of skin-to-skin contact during the first 15 days of the life of the newborn in the L10K areas varies by region. In Oromiya, 70% of the women reported that they always held the baby skin-to-skin against during the daytime and the nighttime; which was notably lower in the other three regions (54% in SNNP, 32% in Amhara, and 24 percent in Tigray). Overall about 46 percent of the babies born during the year before the survey in the L10K areas were always given skin-to-skin contact.

The list of actions taken by the mothers to keep the newborn warm is given in Table 11A of the appendix.

Initiation of breastfeeding within one hour of birth

Early initiation of breastfeeding is in general less common in the four regions. Less than half (45%) of the mothers with children age 0-11 months reported having initiated breastfeeding within an hour after birth (Table 18). There was notable variation in the early initiation of breastfeeding by region with Amhara exhibiting the lowest rate at 22%. In contrast relatively higher rates were recorded in Oromiya (66%) and SNNP (61%). The feeding of the first breast milk (colostrums) was also low at 43% with Amhara reporting least practiced at 34%. Giving the baby anything to drink other than breast milk during the first three days was also analyzed (see Table 12A of the appendix).

Table 18: Percentage of women with children age 0-11 months according to initiation of breastfeeding, and colostrums feeding, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=600	Oromiya n=600	SNNP n=600	Tigray n=648	Four regions (weighted) N=2,448
Initiate breastfeeding within 1 hour	21.7	65.5	61.3	43.6	44.8
Received Colostrums	33.7	48.4	52.2	44.1	43.0

[6] Thermal Protection of the newborn: a practical guide. WHO/RHT/MSM/97.2. Geneva

Postnatal and Newborn Care

Postnatal care is the care provided to the mother after delivery to check for any complications arising from the delivery and to provide the mother with important information on how to care for herself and her child.

Women with children age 0-11 months were asked if they had received postnatal care immediately after delivery and if so they were asked the timing of the first check up and the type of provider (Table 19). In general, postnatal care is virtually non-existent in the four regions, with only 1% of the mothers reporting that they have received the care within 2 days after delivery from a health worker, 2% within 2-45 days. The vast majority (97%) did not receive any postnatal care from a health worker within 45 days after delivery. The contribution of the HEWs to the provision of postnatal care can be considered virtually absent. Only 1% of the mothers with children 0-11 months reported receiving postnatal care from HEWs within 2 days after delivery, 4% with 2-45 days.

Table 19: Percentage distribution of women with children age 0-11 months according to receipt and timing of postnatal care from health worker and health extension worker, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=600	Oromiya n=600	SNNP n=600	Tigray n=648	Four regions (weighted) N=2,448
Timing of first postnatal check up by a health worker					
<2 days	0.2	1.0	0.3	2.4	0.8
2-45 days	1.5	2.3	1.8	0.8	2.4
No check up	98.3	96.7	97.9	96.8	96.8
Timing of first postnatal check up by a HEW					
<2 days	0.7	0.5	1.5	3.9	0.8
2-45 days	4.8	1.7	3..2	0.9	3.9
No check up	94.5	97.8	95.3	95.2	95.3

The analyses of the components of PNC including post partum Vitamin A supplementation, postpartum counseling, and components of the neonatal check-up are given in Table 13A. Eating habit during lactation is provided in Table 14A in the appendix.

Child Immunization

Child immunization coverage

In this survey, women who have a child age 12-23 months were asked whether they had a vaccination card for the child. If a card was available, interviewers were required to copy carefully the dates on which the child received vaccinations against each disease. When the mother could not produce the card, she was asked whether the child had received BCG, pentavelent (PENTA), poliomyelitis (Polio) and measles vaccines. For PENTA and Polio, information was also obtained on the number of injections or oral doses given. The estimation of immunization coverage is based on either the information obtained from the card (if card available) or mother's recall (if card not available).

Table 19 presents the percentage of children age 12-23 months who have received the various vaccinations. In the four regions, vaccination cards were seen by the interviewers for 39% of the children age 12-23 months. Based on the information either recorded on the card or reported by the mother, 46% of children in the L10K project areas of the four regions are fully vaccinated. The

highest fully immunized coverage can be noted in Tigray at 71.6%, followed by SNNP and Amhara at 45%, and 39% in Oromiya.

Vaccine-specific coverage data indicate that PENTA 1, which is a proxy to access to immunization, was received by 84% of the children. Vaccination continuation can be depicted by looking at the proportion of children that received PENTA 3. In the four regions, 64% of the children received PENTA 3 and the dropout rate from PENTA 1 to PENTA 3 was 26%. A little bit over two-third (68%) of the children age 12-23 months has been vaccinated against measles, which is one of the indicators designated in the MDGs. Likewise, coverage rates for PENTA1, PENTA2 and Measles are the highest in Tigray.

Table 20: The percentage of children 12-23 months who received specific vaccines at any time before the survey and the percentage who dropout rate, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

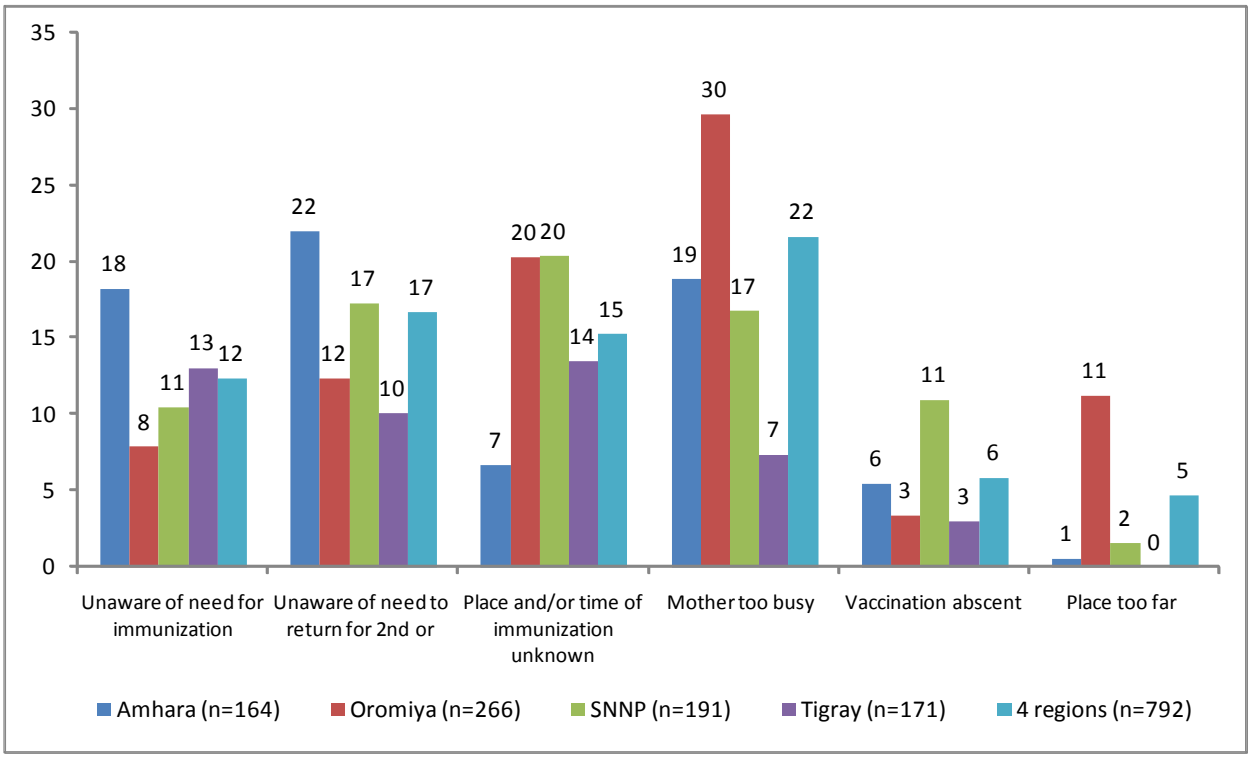
	Amhara n=500	Oromiya n=500	SNNP n=500	Tigray n=540	Four regions (weighted) N=2,040
Percentage with vaccination card	38.2	35.4	28.6	68.8	38.7
BCG	85.2	79.2	81.2	94.6	83.8
POILO0	8.4	10.0	8.4	26.5	10.9
POLIO1	90.2	88.4	90.8	94.0	90.3
POLIO2	82.8	81.2	81.6	91.7	83.1
POLIO3	65.0	72.4	67.6	78.8	69.1
PENTA 1	85.8	77.4	84.6	93.7	84.3
PENTA 2	76.6	68.2	75.2	92.7	75.9
PENTA 3	62.4	55.8	61.6	87.2	63.7
Measles	66.2	63.6	68.4	86.1	68.3
Fully immunized[1]	44.6	39.4	44.6	71.6	46.3
Drop-out rate:					
PENTA 1 to PENTA 3	27.3	30.0	27.4	7.8	25.5

[1]*Children who are fully vaccinated are those who have received BCG, measles, and three doses of Penta and polio vaccines (excluding polio vaccine given at birth)*

Reason for not completed or never vaccinated

The reasons for having children incompletely or never vaccinated were assessed (Figure 4). The main reasons revolved around the mother being too busy (22%), being unaware of the need to return for the 2nd or more times (17%), not knowing place/time of immunization (15%), being unaware of need for immunization (12%), vaccination absent (6%), and place too far (5%). Whereas the various reasons recorded appeared to be common to the four regions, some of the reasons were more apparent in one region than in the others. For instance, the reporting of mother's being too busy appeared the highest in Oromiya at nearly 30% vis-à-vis 7% to the same in Tigray. Lack of awareness was more likely to be reported from Amhara than any of the other regions.

Figure 4: Most commonly cited reasons for incompletely or never having children vaccinated, Amhara, L10K project areas, Oromiya, SNNP and Tigray, December 2008 – January 2009.



Child Health

Exclusive breastfeeding

Exclusive breastfeeding for 6 months is the optimal way of feeding infants. Exclusive breastfeeding reduces infant mortality due to common childhood illnesses such as diarrhea or pneumonia, and helps for a quicker recovery during illness. The percentage of women with children 6–23 months who reported that they exclusively fed only breast milk to their baby until they were six months of age was the highest in Tigray (51%) followed by SNNP (39%), Oromiya (32%) and Amhara (24%). The overall exclusive breast feeding rate until 6 months of age in the L10K areas was 33 %. Thirty one percent continued exclusive breast feeding after 6 months of age; although it is not recommended as complementary food after 6 months of age is essential for the proper growth of the infant.

Table 21: The percentage distribution of children age 6-23 months according to their mothers report regarding the age at introduction of complementary food, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008 – January 2009

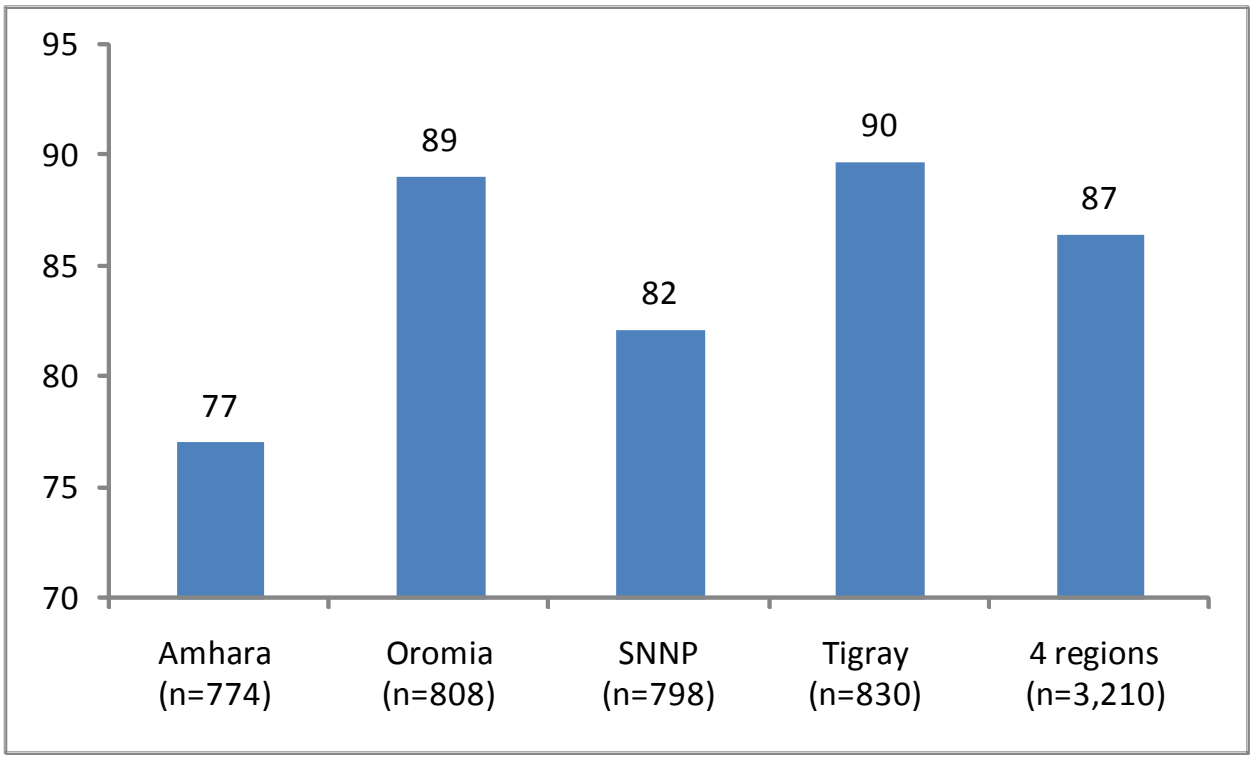
	Amhara n=824	Oromiya n=842	SNNP n=842	Tigray n=862	Four regions (weighted) N=3,370
Percentage given complementary food					
Before 4 months	9.1	29.9	14.0	8.4	15.7
Between 4 & 6 months	15.3	29.9	13.8	15.8	18.8
At 6 months (only breast milk up to 6 months)	23.9	32.1	39.1	51.4	32.7
After 6 months	49.8	6.9	31.5	23.6	31.3
Don't know/missing	1.8	1.2	1.7	0.8	1.5

The percentage of women with children 0-11 months who reported that a community health worker visited her to discuss the feeding of the child, and the topics discussed during the visit in the L10K project areas is given in Table 14A of the appendix.

Vitamin A coverage

Administration of Vitamin A every six months is recommended for countries such as Ethiopia with very high levels of malnutrition and high childhood disease and mortality rates. Vitamin A supplementation has been implemented through the expanded outreach service (EOS) in most parts of Ethiopia. Overall, in the four regions 87% of the children age 6-23 months received Vitamin A during the six months prior to the survey (Figure 5)—89% in Oromiya, 82% in SNNP, 77% in Amhara and the lowest at 70% in Tigray.

Figure 5: Among children age 6-23 months, the percentage that received vitamin A in the previous 6 months, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009



Childhood Illness and Treatment Practice

This section presents the 2-week prevalence of childhood (under 2 years) illnesses and treatment practices with emphasis to acute respiratory infection (ARI), fever, and diarrhea. Provision of antibiotic to children sick with ARI and fever as well as the provision of oral rehydration therapy (ORT) for children with diarrhea were assessed. Mothers of children age 0-23 months were the target for this particular assessment.

Prevalence of Acute Respiratory Infection (ARI) and treatment seeking

A symptom of ARI is defined as cough accompanied by short rapid breathing, which is chest related. Accordingly, about a tenth of the children age 0-23 months in the four regions had symptoms of ARI in the two weeks preceding the survey (Table 22). In Amhara the 2-week prevalence of ARI symptoms was recorded at 6%, which is significantly lower than the 11 to 14% from the other regions. Since most childhood illnesses including ARI are known to vary substantially

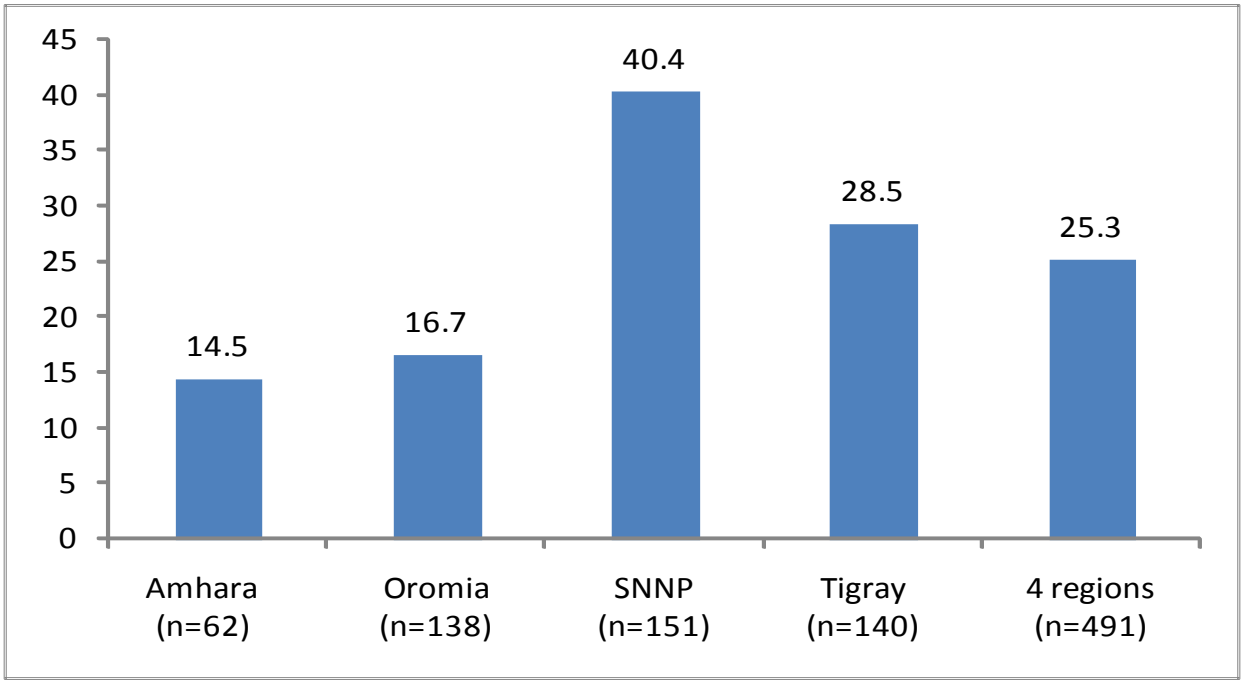
by the prevailing climate, which is in turn influenced by the geographic locations the surveys fielded, comparison of the prevalence of childhood illness across regions should be made with caution.

Among those mothers with children having had symptoms of ARI, about 36% were taken to health facilities/providers for treatment. In terms of the place of treatment, 20% reported health centers, 5% health posts and very few (1%) hospitals. Of note, 8% did not specify the place or type of provider. Treatment seeking for children with symptoms of ARI appeared relatively better in SNNP (48%) and Tigray (40%), while lower at 32% in Amhara and the lowest reported at 24% in Oromiya.

Table 22: Among children age 0-23 months, the percentage who had symptoms of acute respiratory infection (ARI) in the two weeks preceding the survey and the percentage with symptoms of ARI taken to health facility, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009.

	Amhara n=1,100	Oromiya n=1,100	SNNP n=1,100	Tigray n=1,188	Four regions (weighted) N=4,488
Children 0-23 months with symptoms of ARI (previous 2 weeks)	5.7	12.5	13.7	11.0	9.9
Among children 0-23 with symptoms of ARI (Previous 2 weeks):	n=62	n=138	n=151	n=140	N=491
taken to health facility/provider (any)	32.3	23.9	48.3	40.4	35.6
taken to Hospital	1.6	0.0	1.3	0.0	0.8
taken to Health center	19.4	5.8	32.5	22.0	19.5
taken to Health post	6.5	3.6	3.9	11.4	5.3
taken clinic/health station	0.0	3.6	1.3	7.0	2.5
taken to other facilities/providers	4.8	10.9	12.7	0.0	7.5

Figure 6: Among the children 0–23 months with ARI in the previous 2 weeks, the percentage who took antibiotic drugs for the ARI, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009



Antibiotic drugs were reported to be given to a quarter of the sick children with symptoms of ARI (Figure 6). This has been significantly the highest in SNNP (40%), followed by Tigray (29%), Oromiya (17%) and Amhara (15%). Of note, about three quarter of the sick children with symptoms of ARI were not given antibiotics.

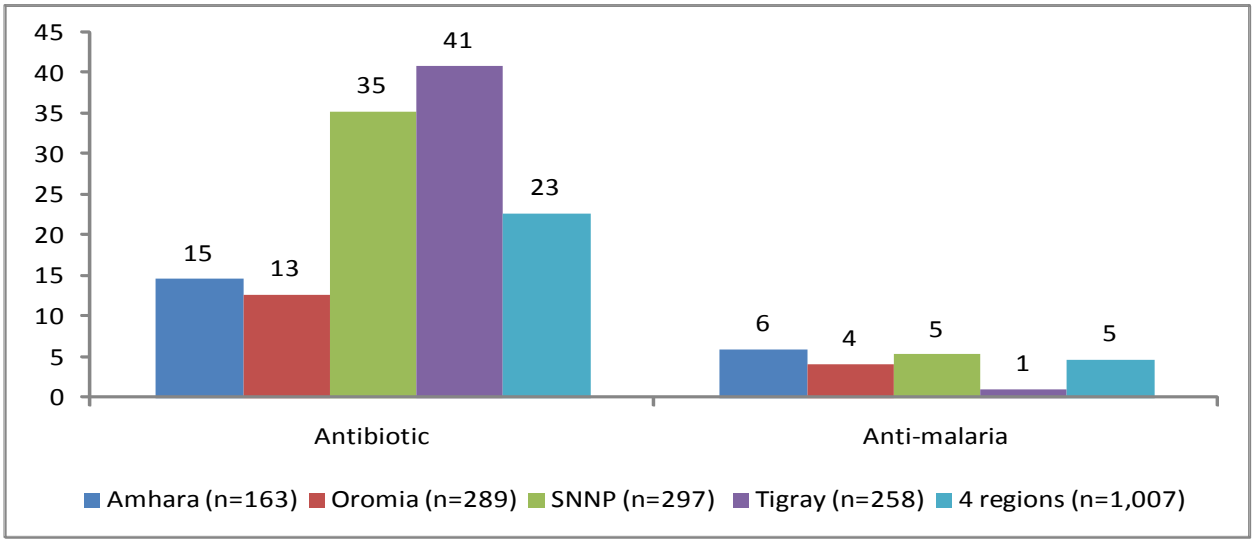
Prevalence of fever and treatment seeking

The 2-week prevalence of fever is reported at 21% in the four regions, ranging from a low of 15% in Amhara to 18% in Tigray, 26% in Oromiya and 27% in SNNP (Table 23). When asked about seeking treatment for reported fever within the past two weeks, 37% of respondents stated that they did so. There is also significant variation in treatment seeking for sick children with fever by region, being the highest in Tigray (55%), and followed by SNNP (48%), Amhara (34%) and Oromiya (25%). Health centers served 19% of the children with fever and few (7%) were taken to health posts.

Table 23: Among children age 0-23 months, the percentage who had a fever in the two weeks preceding the survey and the percentage with fever taken to health facility, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=1,100	Oromiya n=1,100	SNNP n=1100	Tigray n=1,188	Four regions (weighted) N=4,488
% children 0-23 months with fever (previous 2 weeks)	14.8	26.3	27.0	17.5	21.0
Among children 0-23 with fever (Previous 2 weeks):	n=163	n=289	n=297	n=258	n=1,007
taken to health facility/provider (any)	34.4	24.9	48.2	55.2	37.4
taken to Hospital	1.8	0.0	0.7	3.4	1.0
taken to Health center	21.5	5.5	28.3	32.3	19.4
taken to Health post	8.0	5.2	5.7	12.9	6.9
taken clinic/health station	0.0	3.8	1.3	0.0	1.9
taken to other facilities/providers	3.1	10.4	12.2	9.6	8.2

Figure 7: Among children 0-23 months with a fever in the previous two weeks, the percentage who took anti-malarial drugs and who took anti-biotic drugs for the fever, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009.



As shown in Figure 7, about 23% of the children with fever reportedly had received antibiotics while anti-malarial was given to 5% of such children. Likewise, regional variation is apparent in the proportion of children with diarrhea that were given antibiotics, ranging from 41% in Tigray to 13% in Oromiya.

Prevalence of diarrhea and treatment seeking

The 2-week prevalence of any diarrhea among children age 0-23 month was reported to be 22% while bloody diarrhea at 4% (Table 24). Diarrhea prevalence appeared the lowest in Tigray at 17% and Amhara at 18%. SNNPR and Oromiya, on the other hand, reported to have relatively higher prevalence of diarrhea at 31% and 25%, respectively. Comparison of diarrhea prevalence across the region is also complicated by several factors, including climate, and should be made with caution.

Table 24: Among children age 0-23, the percentage who had diarrhea in the two weeks preceding the survey and the percentage with diarrhea taken to health facility, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009.

	Amhara n=1,100	Oromiya n=1,100	SNNP n=1,100	Tigray n=1,188	Four regions (weighted) N=4,488
% children 0-23 months with any diarrhea (All diarrhea)	17.6	24.8	30.7	16.7	22.4
% children 0-23 months who had diarrhea with blood	2.5	3.7	5.0	4.0	3.6
Among children 0-23 with any diarrhea (Previous 2 weeks):	n=193	n=273	n=338	n=228	n=1,032
taken to health facility/provider (any)	31.1	38.1	37.9	55.7	37.4
taken to Hospital	1.1	0.7	0.0	2.0	0.7
taken to Health center	20.7	9.5	21.9	33.7	19.0
taken to Health post	6.7	10.6	6.8	16.5	8.7
taken clinic/health station	1.6	6.6	0.6	2.0	2.7
taken to other facilities/providers	1.0	10.7	8.6	1.5	6.3

Health seeking practices for children with diarrhea were reported to be low with only 37% of children with diarrhea taken to health facilities for treatment. Of those children with diarrhea, 19% were taken to health centers and 9% to health posts.

Twenty-one percent of the children with diarrhea were given antibiotics, the highest being in Tigray at 43% (Analysis not given). In the other regions this ranges between 16% and 23%. Zinc supplementation to such children is virtually non-existence at 0.1.

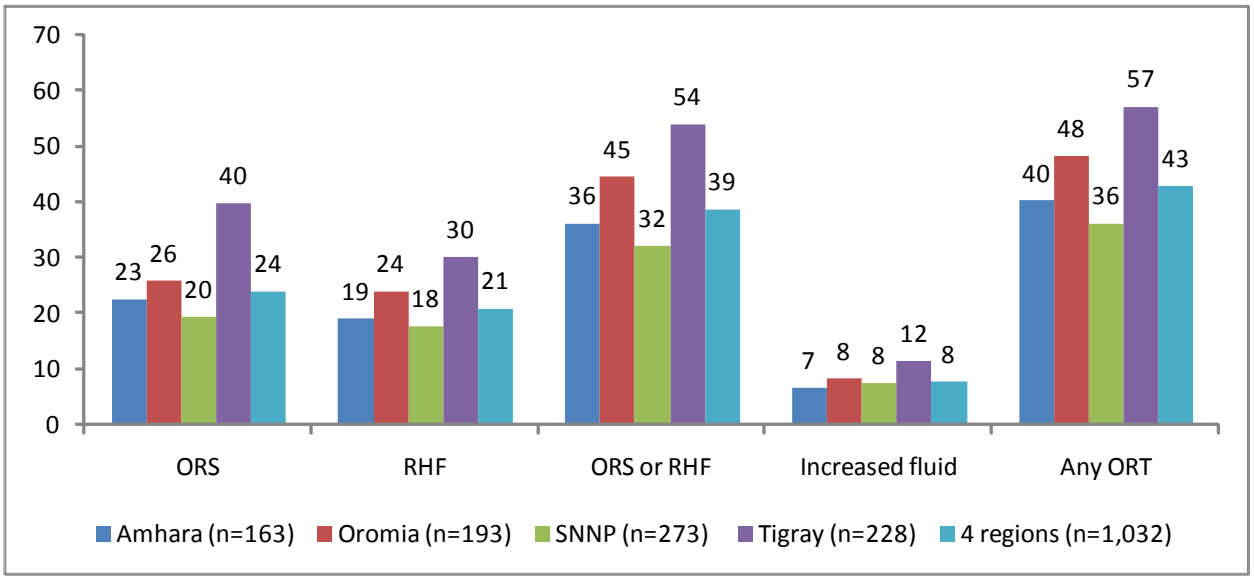
Oral Rehydration therapy

Deaths from acute diarrhea are most often due to the dehydration that results from the loss of water and electrolytes. In order to reduce dehydration due to diarrhea, administration of Oral Rehydration Salt (ORS) is highly recommended. The use of a homemade solution prepared from sugar, salt and water, which is referred to here as Recommended Home Fluid (RHF) and the continuous supply of fluids for children with diarrhea, is crucial. Oral Rehydration Therapy (ORT) encompasses ORS, RHF and increases in fluid. Thus, a child with diarrhea is defined as receiving ORT if he/she received either ORS, or RHF or other fluids.

The survey asked mothers regarding the use of ORS, RHF and the administration of increased fluid for children sick with diarrhea in the two weeks prior to the survey. As shown in Figure 8, 24%, 21%, 39% and 8% of the children suffering from diarrhea received, ORS, RHF, ORS or RHF and

increased fluid, respectively. Overall, 43% of the children with diarrhea in the four regions can be considered having received ORT. The use of ORT in general appeared relatively high in Tigray (57%), followed by Oromiya (48%). This was estimated at 40% and 36% in Amhara and SNNP regions, respectively.

Figure 8: Among children 0-23 months with diarrhea in the previous two weeks, the percentage who received oral rehydration therapy (ORT), i.e. Oral Rehydration Salt (ORS), and/or recommended home fluids (RHF) and/or increased fluids during diarrhea, L10K project areas Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009.



Awareness of the danger signs of childhood illness

Assessment of the knowledge and awareness of mothers regarding warning signs that indicate that a child needs treatment is crucial in designing appropriate Behavioral Change Communication (BCC) strategies. In this survey women with children age 0-23 months were asked to spontaneously mention the warning signs that indicate a newborn and a child under the age of 5 years should be taken to a health facility. Overall, it appears that women in the L10K project areas of the 4 regions were not sufficiently aware of those signs of newborn and childhood illnesses that indicate the need for treatment (Table 25).

Newborn danger signs reported by mothers mainly concern a few issues, which include fever (85%), poor sucking or feeding (28%), vomiting (27%), and difficult/fast breathing (24%). The other danger signs were reported by a very small percentage of the women and can be considered virtually absent. Taken together, mothers' awareness of newborn danger signs exhibited similar pattern across the regions. Akin to the newborns, fever appeared the most important symptoms mothers reported at 75%. This was followed by repeated vomiting (40%), repeated watery stool (40%), cough (38%), not eating/drinking well (17%), difficulty breathing (12%), and fast breathing (11%) among few others.

Of note, although the majority of the women (75%) reported that children with fever should be taken to a health facility, only 37% (see Table 24) of the children who were suffering with fever were taken to health facility, suggesting that knowledge does not necessarily translate into practice. It may well be that even when women know that the child requires to be taken to a health facility, the lack of easy access to health facilities, the direct and indirect service cost, among others, may deter women's ability to seek care for their sick children.

Table 25: Percentage women with children age 0-23 months who spontaneously reported a particular danger sign for newborns and for under five childhood that required treatment or hospitalization, L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009

	Amhara n=1,100	Oromiya n=1,100	SNNP n=1,100	Tigray n=1,188	Four regions (weighted) N=4,488
Newborn danger signs mentioned:					
Vomiting	27.3	37.0	27.6	4.0	27.2
Fever	81.6	92.1	80.2	87.2	84.6
Poor sucking or feeding	24.6	38.6	22.5	25.8	27.9
Baby has difficult/ fast breathing	19.9	25.2	31.7	18.7	23.9
Baby feels cold	2.8	6.9	2.0	5.1	4.0
Baby too small or born too early	0.8	1.2	0.9	3.5	1.2
Redness/discharge around cord	0.5	1.2	0.3	4.2	1.1
Red swollen eye/discharge	3.2	2.7	1.9	7.2	3.2
Yellow palms/soles/eyes	0.5	0.6	0.0	3.0	0.7
Lethargy	1.5	1.5	0.7	1.4	1.3
Unconscious	0.9	2.5	0.8	3.1	1.6
<2 years danger signs mentioned:					
Repeated watery stool	31.3	41.8	36.3	69.4	39.5
Blood in stool	7.8	9.5	4.2	8.2	7.5
Sunken eye	0.9	2.9	1.6	1.4	1.6
Cough	22.6	40.3	48.5	64.4	38.0
Difficulty breathing	13.7	13.2	12.0	4.9	12.2
Fast breathing	11.4	13.5	10.1	8.3	11.3
Noisy breathing	2.1	3.7	2.2	1.7	2.5
Fever	76.2	70.0	73.0	82.4	74.6
Convulsion	1.2	2.2	7.1	2.9	3.0
Not eating/drinking well	17.1	24.6	9.2	11.7	16.6
Repeated vomiting	43.1	40.9	22.8	59.9	39.7

SUMMARY AND RECOMMENDATIONS

This baseline survey sets benchmarks and useful information concerning reproductive, maternal, newborn and child health as well as other related health issues for the L10K project interventions in the four major regions of Ethiopia. Whereas the four-region combined results are relevant for the broader understanding and framing of project intervention activities, region-specific findings are more relevant to guide intervention needs at regional and even lower levels.

A summary of the salient findings and recommendations are detailed below.

- *32% of the currently married women are practicing family planning, the vast majority injectables contraceptive*

In Ethiopia family planning use has evolved quite gradually and the recent unprecedented increase in contraceptive use is largely attributable to the health extension program. Injectables have emerged as the most widely practiced method constituting over 85% of the current use. Long acting and permanent methods are rarely practiced despite the reported high need for spacing and limiting births among women. **Therefore, family planning programs should improve method mix with proper emphasis to long acting and permanent methods by assessing women's fertility preferences and contraception choices. Referral linkages between health posts and higher health institutions, especially for clinical methods, should be strengthened. Improving community awareness concerning the various methods and dispelling misconception surrounding family planning, including long acting and permanent methods should also constitute among the priority interventions. More work also needs to be done to generate new demand amongst those women (and men) who are currently not contracepting due to supply side and social factors as noted in the survey.**

- *54% of the women received antenatal care (ANC), only 20% had 4 or more ANC visits*

Although the recorded ANC use rate represents an improvement from past, it is yet far off the universal coverage. Besides, only 20% of the women received the recommended 4 or more number of visits. **Efforts to increase ANC service use by educating women on its benefit should always remain a priority intervention. Early initiation of ANC and the need for an adequate number of visits should also be emphasized.** The content of antenatal care is vital in evaluating its quality and value. This survey unearthed the presence of considerable missed opportunity concerning the various contents of ANC including urine and blood testing, iron supplementation, TTI, among others. **It is critical that health facilities and providers are equipped properly in order to respond to the growing need for ANC and ensure that pregnant women attending ANC receive all the necessary services.**

- *42% of the women received at least two doses of TTI during most recent pregnancy, 54% protected against neonatal tetanus.*

Women in the four regions are yet to be protected against tetanus and there is also missed opportunity for TTI among women attending ANC. **Access to TTI should be strengthened through the routine ANC as well as outreach program**s.

- *91% of the deliveries took place at home*

Access to institutional delivery has remained a major challenge to the vast majority of rural women in Ethiopia. **Efforts to train and equip HEWs on basic but critical delivery care services should constitute a priority intervention. As part of the ANC services, identifying pregnant women early during pregnancy as well as identifying high-risk pregnancies and consulting women on birth preparedness and delivery arrangements are important steps to mitigate the problem. VCHWs could potentially be an asset for HEWs for early identification of pregnant women in their community.**

- *88% used new/boiled blade to cut the umbilical cord*

It is highly recommended to use a sterile instrument to cut the umbilical cord and this survey found that the vast majority of the newborns had their umbilical cord cut with a new/boiled blade. Although it is difficult to ascertain the reliability of this information due to desirability bias and memory lapse, the reported practice appears quite encouraging. In Tigray, scissors were reported by a fifth of the women to cut the cord. Unfortunately, this survey did not ask the status of the scissors whether new, boiled or used, and as a result interpretation has become difficult. **Health messages should continue emphasizing on the use of sterile instruments to cut the umbilical cord**.

- *54% used new/boiled string to tie the cord, 25% left the cord untie*

The findings that only about 54% used 'sterile string' to tie the cord and 25% left the cord untie can be causes for great concern. **It is therefore imperative that women and traditional birth attendants are well informed to tie the cord with sterile string before cutting it to avoid potential life threatening bleeding from the umbilical cord.**

- *71% did not apply any dressing to the umbilical cord, 27% applied butter*

In some cultures, especially in parts of Amhara and Tigray, the dressing of the umbilical cord with butter appeared to be somehow common, as also revealed by this study. **There is a need to dispel such practice by educating the public, community leaders as well as traditional birth attendants on its negative aspects.**

- *75% dried and 89% wrapped the baby before the placenta delivered*

This survey revealed a good practice in terms of keeping newborns warm and maintaining body temperature. **Effort to make these good practices universal in the four regions through information and education campaigns is highly recombined.**

- *66% of the babies bathed before 6 hours of birth*

Bathing the newborn soon after birth causes a drop in the baby's body temperature and is not necessary, and that WHO recommends delaying bathing for at least 6 hours or preferably for 2 or 3 days. Contrary to the recommendation, early bathing appeared quite common in the four regions. **This calls for health communication efforts to educate mothers, care takers, traditional birth attendants and elders on the negative aspects of early bathing of newborns and encourage them to delay bathing to recommended hours or days.**

- *45% of the mothers initiated breastfeeding within an hour of birth, 43% fed colostrums*

Early initiation of breastfeeding within an hour is highly recommended. This is less practiced in the four regions, however. The feeding of the first breast milk (colostrums) is also low. **As part of newborn care intervention and essential nutrition action, mothers should be encouraged to**

initiate breastfeeding early and to feed the first milk, and also to continue exclusive breastfeeding up to 6 months.

- *Less than 1% of the mother received postnatal care within 2 days, 3.2% within 45 days*

As most deliveries are happening at home, postnatal check-ups within few days after delivery are critical for the mother and the newborn. In the four regions, postnatal care is virtually non-existent. Also, the HEWs rarely involved in the provision of the service. **While educating women on the importance of early postnatal care and creating demand for the services is a priority intervention, it is equally important to strengthen the health post and the HEWs to respond to the demand.** Of equal importance is also the early identification of pregnant women by HEWs with support from vCHWs for both pre and post natal care.

- *84% of the children age 12-23 months received PENTA 1 vaccine, 64% PENTA 3*

The finding that PENTA 1 reached 84% signals a considerably high access to EPI services to rural population. In contrast, continuation of immunization (PENTA 1 to PENTA 3) falls short of 26%. **Defaulters tracing is an important strategy to minimize the dropouts.** This survey also revealed that women's lack of awareness of the need to return for the second or third time implicated among the major deterrents for not completing immunization. **Lessening these barriers calls for community mobilization and behavioral change efforts.**

- *68% of the children age 12-23 months received Measles vaccine*

The MDGs identified Measles vaccine coverage among the key indicators and the recorded coverage by this survey falls short of the target. **Measles immunization should be strengthened via the routine program as well as through campaigns**.

- *46% of the children age 12-23 months are fully immunized*

The fully immunized coverage recorded by this survey is far short of the 80% target. Demand side barriers such as lack of women's time and lack of knowledge on the various aspects of immunization and the benefits remain real challenges. **Mothers and care takers are informed continuously on the importance of immunization and should be encouraged to follow schedule until full immunization.**

- *87% of the children 6-23 months received Vitamin A*

This is an encouraging finding and signals the effectiveness of the Expanded Outreach Service (EOS) in the regions. **Currently, UNICEF is in the process of handing over the EOS to the HEP and that evaluating the efficiency of the transition and documenting best practices is an important operational research agenda.**

- *37% of the sick children in the 2-week prior to interview were taken to health facilities for treatment.*

Most women included in this survey were not sufficiently aware of the major danger signs of newborns and under 5 children that indicate treatment in health facilities. Limited physical and financial accesses as well as competing time demand are also among the barriers to seeking care for sick children in health facilities. **Improving mothers' and care takers' awareness of the danger signs of childhood illnesses and encourage them to seek care for sick children are critical. It is equally important to strengthen the health post with equipment and supplies, improving**

HEWs' skills in the management of childhood illnesses and the referral linkages with higher facilities.

- *43% of the children with diarrhea in the 2-week prior to the survey received Oral Rehydration Therapy (ORT)*

The findings of this survey underscore the need for improving the home management of childhood diarrhea in the regions. Of note, only a quarter of the children with diarrhea were given ORS. **Mothers and caretakers should be equipped with the knowledge and skills required for the home management of childhood illnesses. From the supply side, the program needs to ensure the continuous supply of ORS through different outlets**.

- *68% of the households in malarious areas owned at least one bed net*

Undoubtedly, the recent decline in malaria incidence in Ethiopia is highly attributable to bed nets and the country has been praised for the recorded success. With this momentum, reaching universal coverage appears plausible. There are also gaps in terms of bed net use, as revealed by this survey. Only 40% of the households with bed nets had someone slept under bed net the night before the survey. **This calls for concerted health education with emphasis to promoting bed net use and the maintenance of behavioral consistency.**

- *60% of the households had toilet facilities*

Recently, there has been a huge emphasis on the promotion of pit latrine construction in rural Ethiopia. **While maintaining the current impetus is critical, efforts should be put in place to maintain the already constructed latrines and monitor their quality. Encouraging latrine use should also constitute among the priority intervention efforts.**

- *50% of the households had access to clean water supply*

This is an area of great concern in that clean water supply is an important determinant of health. Treating water before drinking is also rarely practiced. Indeed, availing clean water to rural community has always been a development agenda and cannot be achieved within a short span. **As a short term remedy, health education efforts should focus on the most viable and cost effective way of treating drinking water at household level.**

- *Cross-cutting issues*

The conclusion drawn from findings of this survey is that reproductive, maternal, newborn and child health care lie within households/families, communities and health institutions. Therefore, addressing the aforementioned recommendations certainly demands interlocking intervention efforts targeted at all levels - households/families, community, health workers and health institutions. Over 70% of the kebeles included in this survey are served with health posts and more than 90% have at least one HEW. Volunteer community health workers are present in 89% of the kebeles. The synergy among these health resources, if well coordinated and managed, can advance rural health to the desired level. Below are cross-cutting recommendations that need to be considered in addition to the recommendations put forward in the previous section.

  - Targeted intervention is warranted towards improving women's access to safe and clean delivery, essential newborn care and postnatal care services across the four regions. This survey found considerably wide gaps in these areas and indeed past intervention efforts to mitigate these critical health issues have been weak and staggering in the country.

- Promote the model family at a household level and increase community awareness and participation in the program. Ensure that women are well aware of the model family and participate actively in the program.
- Communities, and particularly vCHWs have untapped potential to support the HEWs work in promoting primary health in rural Ethiopia. The health extension program should actively involve vCHWs to implement community mobilization and behavioral change activities at household and community levels.
- The HEWs' health promotion efforts appeared to give more emphasis to the construction of pit latrines and personal hygiene. Although the achievements registered in these areas are commendable, it is also relevant to give due attention to the promotion of maternal, newborn and child health in the rural communities.
- The health posts need to be equipped to respond to the growing demand for services. Strengthening the logistics management system that includes vaccines, supplies and ensuring cold chain management and maintenance, contraceptive commodities, iron tablets, ORS and other essential drugs, etc is. critical.
- Referral linkages between health posts and higher institutions should be further strengthened.
- Equip HEWs with skills and improve their confidence in providing safe and clean delivery as well as postnatal care. Concomitantly, Health Posts should have the necessary equipments and supplies to deliver these services.
- BCC materials such as the family health card and Immunization certificate have proven to be effective in inducing good household health practices in relation to maternal, newborn and child health. Ensuring families have access to such materials and utilize them properly is important.

APPENDIX 1: TABLES

Table 1A: Percentage distribution of respondents according to possession of family health card and immunization diploma, by region, age group, education and distance to the nearest health facility, L10K project areas, December 2008- January 2009

Background characteristics	Family health card			Immunization diploma			Sample size
	Yes	No	Not applicable	Yes	No	Not applicable	
Region							
Amhara	4.5	90.9	4.6	6.4	88.1	5.5	1,724
Oromiya	1.5	95.4	3.1	3.5	93.4	3.1	1,527
SNNP	5.3	91.8	2.9	14.6	81.9	3.4	1,484
Tigray	12.8	84.7	2.5	11.7	85.0	3.3	1,542
Age group							
15-19	5.7	76.9	17.4	5.7	77.0	17.3	454
20-24	3.7	91.9	4.3	7.4	87.5	5.2	1,481
25-34	5.1	92.9	2.1	9.1	88.4	2.5	3,066
35-49	4.9	93.8	1.3	7.2	90.6	2.2	1,276
Education							
None	4.0	93.3	2.7	7.4	89.5	3.2	4,725
Primary	7.5	87.2	5.4	9.9	84.2	5.9	907
Higher	8.3	80.6	11.1	11.8	75.5	12.7	645
Distance to nearest health facility							
<30 min.	4.9	91.0	4.1	7.3	88.2	4.6	3,317
30 min. to <1 hr	4.8	92.1	3.2	9.8	86.4	3.8	1,579
1 to <2 hrs.	5.0	92.2	2.8	9.9	86.4	3.8	887
2+ hrs.	3.5	93.1	3.4	4.5	91.7	3.8	494
Total	4.8	91.6	3.6	8.0	87.8	4.2	6,277

Table 2A: Fertility preference: Percentage distribution of the women in reproductive age according to their desire to have children in the future by region, age group, education and distance to the nearest health facility, L10K project areas, December 2008–January 2009

Background characteristics	Undecided/ can't have children	Have child soon	Have child after 2 years	No more children	No. of women
Region					
Amhara	9.0	8.0	41.1	41.9	1,000
Oromiya	9.7	2.9	42.9	44.5	1,000
SNNP	9.3	6.0	52.5	32.2	1,000
Tigray	7.5	2.6	54.9	34.9	1,080
Age group					
15-19	13.5	7.6	59.5	19.4	303
20-24	7.1	6.7	65.8	20.4	923
25-34	7.2	5.8	46.3	40.7	1,910
35-49	13.3	3.5	20.4	62.8	944
Education					
None	8.9	5.6	42.7	42.8	3,026
Primary	9.4	6.2	51.5	32.9	605
Higher	10.8	4.3	65.8	19.1	449
Distance to nearest health facility					
<30 min.	9.8	5.4	45.2	39.6	2,156
30 min. to <1 hr	8.2	5.6	48.1	38.2	1,015
1 to <2 hrs.	8.9	6.3	44.5	40.2	582
2+ hrs.	7.2	5.8	45.5	41.6	327
Total	9.1	5.6	45.8	39.5	4,080

Table 3A: Percentage of women in reproductive age reported that they are currently pregnant, and the Percentage distribution of currently pregnant women according to the intention of getting pregnant by region, age group, education and distance to the nearest health facility, L10K project areas, December 2008− January 2009

Background characteristics	Currently pregnant	No. of women	Planning status of current pregnancy				No. of pregnant women
			Wanted then	Wanted later	Wanted no more	Missing	
Region							
Amhara	6.9	1,000	59.4	24.6	10.1	5.8	69
Oromiya	8.8	1,000	51.1	26.1	20.5	2.3	88
SNNP	7.2	1,000	59.7	13.9	18.1	8.3	72
Tigray	5.6	1,080	54.5	24.6	10.7	10.2	51
Age group							
15-19	10.9	303	52.2	36.3	11.5	0.0	28
20-24	7.5	923	64.3	21.5	10.0	4.3	63
25-34	7.4	1,910	55.9	19.6	18.0	6.5	135
35-49	5.8	944	50.6	23.1	17.2	9.1	54
Education							
None	7.7	3,026	55.6	23.2	15.6	5.7	223
Primary	6.7	605	65.5	18.9	15.6	0.0	42
Higher	5.1	449	49.4	23.3	9.5	17.8	15
Distance to nearest health facility							
<30 min.	7.7	2,156	55.4	22.5	14.9	7.2	156
30 min. to <1 hr	7.0	1,015	61.9	18.0	16.2	4.0	62
1 to <2 hrs.	7.1	582	48.7	33.6	17.7	0.0	41
2+ hrs.	6.2	327	62.4	18.6	10.0	9.0	21
Total	7.3	4,080	56.5	22.6	15.2	5.7	280

Table 4A: Contact of nonusers with family planning providers: Percentage who were visited by a community health worker who discussed family planning, the percentage who visited a health facility and discussed family planning, the percentage who visited a health facility and did not discussed family planning, and the percentage who did not discuss family planning with a field worker or at a health facility in the 12 months preceding the survey, by region, age group, education and distance to the nearest health facility, L10K project areas, December 2008− January 2009

Background characteristics	Visited by a health worker who discussed family planning	Women who visited health facility and:		Women who did not discuss family planning with a health worker or at a facility	No. of non users
		Discussed family planning	Did not discuss family planning		
Region					
Amhara	15.6	7.6	24.7	79.4	712
Oromiya	11.2	9.5	36.5	82.1	687
SNNP	23.9	11.3	26.6	69.8	691
Tigray	22.4	26.0	31.6	61.7	749
Age group					
15-19	13.2	6.9	30.0	81.0	218
20-24	17.8	11.1	30.4	75.5	612
25-34	18.8	12.4	29.2	73.5	1,286
35-49	14.9	9.7	27.0	78.6	723
Education					
None	16.2	9.8	27.6	77.6	2,203
Primary	20.4	13.5	37.8	71.5	387
Higher	22.4	20.9	29.0	63.0	249
Distance to nearest health facility					
<30 min.	18.1	10.6	29.6	75.5	1,455
30 min. to <1 hr	19.5	13.6	29.5	72.0	703
1 to <2 hrs.	13.3	8.4	29.7	80.8	429
2+ hrs.	11.9	11.0	22.8	79.7	252
Total	17.2	11.0	29.0	75.8	2,839

Table 5A: The percentage of nonusers who intent to use family planning in the future by region, age group, education and distance to the nearest health facility, L10K Project areas, December 2008−January 2009

Background characteristics	Yes	No	Don't know	No. of nonusers
Region				
Amhara	60.5	28.1	11.4	712
Oromiya	65.7	23.4	10.9	687
SNNP	71.4	19.0	9.7	691
Tigray	63.6	23.7	12.7	749
Age group				
15-19	70.7	16.5	12.8	218
20-24	74.4	15.6	10.0	612
25-34	68.9	19.2	12.0	1,286
35-49	46.6	43.7	9.7	723
Education				
None	62.7	26.7	10.6	2,203
Primary	70.6	16.3	13.1	387
Higher	77.7	10.4	11.8	249
Distance to nearest health facility				
<30 min.	64.0	25.0	11.0	1,455
30 min. to <1 hr	64.5	24.3	11.1	703
1 to <2 hrs.	64.6	24.3	11.2	429
2+ hrs.	69.1	20.5	10.4	252
Total	64.7	24.3	11.0	2,839

Table 6A: Percentage of currently pregnant women who slept under a bed net in the malarious region by region, age group, education and distance to the nearest health facility, L10K project areas, December 2008−January 2009

Background characteristics	Yes	No	Missing	No. of currently pregnant women
Region				
Amhara	30.9	67.3	1.8	55
Oromiya	28.1	72.0	0.0	82
SNNP	45.5	54.6	0.0	44
Tigray	29.3	70.7	0.0	37
Age group				
15-19	19.7	74.6	5.7	23
20-24	24.0	76.0	0.0	50
25-34	40.6	59.4	0.0	103
35-49	30.6	69.4	0.0	42
Education				
None	32.5	66.7	0.8	173
Primary	29.9	70.1	0.0	37
Higher	40.1	60.0	0.0	8*
Distance to nearest health facility				
<30 min.	36.4	63.6	0.0	119
30 min. to <1 hr	26.6	70.5	2.9	52
1 to <2 hrs.	36.1	63.9	0.0	33
2+ hrs.	9.0	91.0	0.0	14*
Total	32.4	66.9	0.7	218

*Estimates should be cautiously interpreted due to small sample size

Table 7A: Percentage of women with children age 0-11 months who were visited by any community health worker during pregnancy and the topics discussed during the visit by region, age group, education and distance to the nearest health facility, L10K project areas, December 2008−January 2009

	Region				Total
	Amhara	Oromiya	SNNP	Tigray	
Visited by community health worker	15.5	6.1	19.0	26.1	15.1
No. of women	600	600	600	648	2,448
Topics discussed during visit					
To get checked up during pregnancy	58.2	82.9	64.5	76.1	66.1
To get TT vaccination	46.2	34.3	24.5	45.0	38.4
To take iron foliate tablet	5.5	5.7	1.8	12.8	5.9
To take extra amount of food	14.3	31.4	20.9	46.0	24.3
To take rest	4.4	5.7	16.4	11.6	9.5
To avoid heavy work	9.9	14.3	12.7	3.5	9.9
To seek care if there is a health problem	16.7	34.3	19.1	17.6	19.4
To save money for emergency	3.4	0.0	0.9	2.4	2.1
To arrange for emergency transport	2.2	0.0	0.0	2.2	1.3
To ensure a trained birth attendant	0.0	2.9	0.0	4.1	1.1
Put the baby to breast immediately after delivery	0.0	8.6	0.0	4.3	1.8
Give colostrums	0.0	0.0	1.8	0.4	0.6
No pre-lacteals	1.1	2.9	3.6	1.4	2.1
Exclusive breastfeeding	2.2	8.6	5.5	2.3	3.9
LAM	0.0	8.6	0.0	0.4	1.0
Nothing to be applied to the umbilical stump	0.0	2.9	4.5	0.6	1.8
Delay bathing until after 24 hours	1.1	0.0	0.0	2.2	0.9
To sleep under a bed net	3.4	5.7	1.8	0.6	2.6
Counsel and test for HIV	2.2	2.9	3.6	7.5	3.8
No. of women	92	36	113	150	391

Table 8A: Percentage of women with children age 0-11 months who during the past pregnancy regularly took iron supplementation, took drugs for intestinal parasite and in the malarious areas took drugs to prevent malaria by region, age group, education and distance to the nearest health facility, L10K project areas, December 2008−January 2009

Background characteristics	Took iron supplement	Took drugs for intestinal parasite	No. of women	Malarious areas	
				Took drugs to prevent malaria	No. of women
Region					
Amhara	14.3	3.7	600	7.7	468
Oromiya	10.2	9.5	600	6.5	492
SNNP	13.8	9.2	600	10.8	408
Tigray	27.8	2.6	648	6.8	504
Age group					
15-19	16.4	7.9	213	7.0	160
20-24	12.6	7.5	651	6.7	488
25-34	15.3	5.6	1,228	8.8	949
35-49	15.2	5.8	356	7.6	275
Education					
None	12.9	6.6	1,797	8.1	1,376
Primary	18.1	5.7	373	7.8	297
Higher	26.1	4.9	278	6.5	199
Distance to nearest health facility					
<30 min.	14.9	6.6	1,261	8.4	981
30 min. to <1 hr	14.1	5.1	618	7.9	464
1 to <2 hrs.	13.4	7.3	357	7.8	276
2+ hrs.	16.9	7.1	212	5.0	151
Total	14.7	6.3	2,448	7.9	1,872

Table 9A: Percentage of women with children 0-11 months who reported that they had made preparing for her last delivery while they were pregnant, the items that was considered for preparation, the birth attendance they plan to have, and distribution of women by their plan for place of delivery, by region, L10K project areas, December 2008−January 2009

	Region				Total
	Amhara	Oromiya	SNNP	Tigray	
Made preparation for delivery	62.0	70.2	68.0	81.1	67.7
Prepared for:					
Financial	17.3	25.5	25.8	21.2	21.9
Transport	6.7	5.3	2.8	6.1	5.4
Food	55.2	63.5	63.3	74.6	61.4
Arrange birth attendants	12.0	7.8	2.7	5.2	8.0
Identified health facility for delivery	2.8	3.5	1.5	3.8	2.8
Prepared clean/app. materials for delivery	13.2	25.5	8.5	34.3	17.7
Identified blood donor	0.3	0.3	0.0	0.0	0.2
Delivery attendant planned:					
Untrained TBA	11.2	5.3	7.7	4.0	8.0
Trained TBA	3.3	5.2	4.2	10.0	4.8
Mother	23.7	13.8	10.7	38.8	19.8
Mother-in-law	6.5	13.0	5.8	7.1	8.1
Other female relative	15.5	18.2	7.7	14.3	14.2
Health extension worker	3.8	3.7	8.7	5.2	5.1
Community health worker	0.0	1.8	0.8	1.7	0.9
Plan on place of delivery					
Not planned	38.3	31.7	32.7	20.2	33.2
Own home	52.0	55.8	59.5	54.7	55.1
Other home	5.7	4.8	0.7	1.3	3.8
Government hospital	0.2	2.3	1.3	7.1	1.8
Government health center	2.3	2.7	4.3	9.6	3.7
government health station	0.0	0.0	0.0	0.6	0.1
Health post	1.5	0.7	1.2	4.2	1.5
NGO health facility	0.0	1.5	0.0	1.9	0.6
Private hospital	0.0	0.0	0.0	0.6	0.1
Private doctor/clinic	0.0	0.3	0.0	0.1	0.1
No. of women	600	600	600	648	2,448

Table 10A: Percentage of women with children 0-11 months mentioned a particular danger sign during childbirth and during postnatal period, by region, L10K project areas, December 2008−January 2009

	Region				Total
	Amhara	Oromiya	SNNP	Tigray	
Danger signs during childbirth mentioned					
Excessive vaginal bleeding	27.5	41.7	25.3	57.0	34.0
Foul-smelling discharge	1.0	1.8	0.8	1.4	1.2
High fever	12.0	37.2	11.3	23.2	19.6
Baby's hand or feet come first	4.5	4.3	2.5	5.6	4.1
Baby's in abnormal position	11.7	14.3	5.3	6.6	10.3
Prolonged labor (>12 hours)	76.8	77.3	68.2	64.9	73.6
Retained placenta	41.3	39.8	25.5	49.4	38.2
Rupture uterus	3.0	2.5	2.0	5.1	2.9
Prolapsed cord	0.5	1.2	0.0	2.4	0.8
Cord around neck	0.2	1.3	0.2	3.1	0.8
Convulsions	1.7	2.7	1.5	1.7	1.9
Danger signs during postnatal period mentioned					
Excessive vaginal bleeding	44.8	51.8	37.0	70.9	47.8
Foul-smelling discharge	1.2	2.3	3.2	1.6	2.0
High fever	22.2	50.2	25.7	31.3	31.3
Sever abdominal pain	42.0	53.5	42.8	37.2	44.6
Convulsions	7.0	8.2	3.5	11.2	7.0
No. of women	600	600	600	648	2,448

Table 11A: Percentage of women with children 0-11 months who mentioned a particular action they did to keep the baby warm following delivery, by region, L10K project areas, December 2008−January 2009

	Region				Total
	Amhara	Oromiya	SNNP	Tigray	
Actions taken to keep the baby warm					
Dried the baby	13.3	21.5	10.5	22.5	15.8
Wrapped the baby	91.5	96.3	91.3	89.2	92.5
Put baby beside the mother	16.5	23.2	17.5	6.9	17.4
Keep the baby to bare skin-to-skin contact	6.3	5.8	2.5	7.2	5.4
Bathed in warm water	4.5	6.5	4.3	4.2	4.9
Warmed delivery room	1.8	0.8	0.7	1.7	1.3
No. of women	600	600	600	648	2,448

Table 12A: Percentage of women with children 0-11 months who reported that her child was given something to drink other than breast milk during the first three days after birth, and the drink that was provided, by region, L10K project areas, December 2008−January 2009

	Region				Total
	Amhara	Oromiya	SNNP	Tigray	
Given anything to drink other than breast milk	57.8	7.3	12.2	23.3	30.2
Liquids/food that were given to the newborn					
Milk (other than breast milk)	1.7	3.5	3.2	0.1	2.3
Plain water	1.5	1.5	3.3	2.4	2.0
Sugar or glucose water	4.7	0.5	1.3	4.9	2.8
Fruit juice	0.0	0.2	0.0	0.0	0.0
Infant formula	0.0	0.2	0.2	1.0	0.2
Tea/infusion/"hamesa"	0.2	0.0	0.0	0.6	0.1
Fresh butter	52.2	2.3	2.7	11.9	23.1
No. of women	600	600	600	648	2,448

Table 13A: Percentage of women with children 0-11 months who received PNC by any provider during the past pregnancy by region, percentage received postnatal vitamin A, topics discussed during PNC, components of PNC, and components of neonatal check-up, L10K project areas, December 2008−January 2009

	Region				Total
	Amhara	Oromiya	SNNP	Tigray	
Received any PNC	9.7	6.0	9.7	24.5	10.4
Received vitamin A during the postnatal period	6.7	25.3	14.5	27.0	15.6
No. of women	600	600	600	648	2,448
Topics discussed during PNC					
To take extra amount of food	20.7	11.1	17.2	23.7	19.3
To seek care if there is danger sign	3.4	5.6	12.1	8.2	6.9
Exclusively breastfeed (to 6 months)	27.6	19.4	31.0	11.9	22.9
Frequency of breastfeeding	10.3	5.6	6.9	5.1	7.5
Complete feeding at one breast before switching	1.7	2.8	3.4	2.7	2.5
Keep bay warm	13.8	2.8	6.9	9.2	9.4
Position & attachment	3.4	0.0	1.7	0.6	1.8
Immunize your child	39.7	8.3	10.3	15.3	22.1
LAM	3.4	2.8	5.2	4.3	4.0
To have your child (ren) sleep under bed net	0.0	8.3	1.7	0.4	1.7
PNC components for mother					
Examined body	12.1	22.2	12.1	31.1	18.7
Checked breast	6.9	16.7	10.3	3.8	8.3
Checked for heavy bleeding	6.9	25.0	3.4	17.8	11.8
Counseled on danger signs	5.2	5.6	1.7	9.4	5.6
Counseled on family planning	1.7	11.1	3.4	7.0	4.9
Counseled on nutrition	1.7	19.4	5.2	17.6	9.4
Referred to health center/hospital	1.7	2.8	3.4	4.1	2.9
Neonatal check-up components					
Generally examined/looked at baby's body	1.7	8.3	8.6	25.8	10.7
Weighted baby	1.7	11.1	8.6	17.4	8.8
Checked cord	0.0	8.3	5.2	6.5	4.1
Counseled on breastfeeding	1.7	19.4	6.9	9.4	7.5
Observed breastfeeding	1.7	5.6	1.7	10.2	4.6
Counseled on skin-to-skin contact/warmth	3.4	8.3	1.7	3.3	3.8
Checked baby for danger signs	0.0	2.8	0.0	2.0	1.0
Counseled on danger signs	0.0	2.8	0.0	2.7	1.1
Referred to health center/hospital	0.0	0.0	0.0	2.3	0.6
Nothing	15.5	13.9	3.4	7.8	10.6
No. received PNC/baby received neonatal check-up	58	36	58	169	321

Table 14A: Percentage of women with children 0-11 months who reported that a community health worker visited her to discuss the feeding of the child, and the topics discussed during the visit by region, L10K project areas, December 2008 - January 2009

	Region				Total
	Amhara	Oromiya	SNNP	Tigray	
Eating habit during breast feeding					
Eat more than usual	28.8	38.6	33.5	49.4	34.8
Same as before	64.1	56.5	53.9	45.8	57.7
Less than usual	6.7	4.8	12.3	4.8	7.3
	0.3	0.2	0.4	0.1	0.3
Community health worker visited to discuss child nutrition	8.2	3.8	11.5	10.7	8.1
No. of women	600	600	600	648	2,448
Topics discussed during the visit					
For you, to take extra amount of food	67.3	52.2	47.8	85.1	61.7
Exclusively breastfeed (to 6 months)	38.8	73.9	50.7	43.4	47.7
Frequency of breastfeeding	18.4	26.1	17.4	12.6	18.1
Complete feeding at one breast before switching	8.2	0.0	1.4	2.3	4.1
Continue breastfeeding child until 2 years and beyond	0.0	4.3	0.0	3.2	1.0
Begin complementary feeding at 6 months	14.3	17.4	27.5	39.2	22.8
Frequency of feeding	2.0	4.3	5.8	8.4	4.5
Use of different food to enrich porridge	16.3	4.3	4.3	14.0	10.5
Immunize your child	30.6	8.7	15.9	17.3	21.1
LAM	4.1	4.3	0.0	2.3	2.5
Family planning	2.0	8.7	14.5	16.4	9.1
No. of women visited by community health worker	49	23	69	117	258

APPENDIX 2: SURVEY PARTICIPANTS FROM THE REGIONAL HEALTH BUREAUS

Amhara

Abeba Getnet
Abera Seyoum
Aemiro Degualem
Asresu Lake
Awoke Girma
Azmeraw Ferede
Belay Ambachew
Belay Mekonnen
Esubalew Berhanu
Fasil Fekade
Girma Birhanu
Hailay Gebrearegawi
Lulie Walle
Maru Meseret
Mekuriaw Alemu
Melaku Belew
Melkamu Tiruneh
Melkamu Wale
Metadel Alemayehu
Mohammed Ali
Muluwashum Zewdu
Muretu Alebachew
Teshome Getachew
Tilahun Mequanint
Worku Melese
Yalemzewud Assefa
Yohannes Achaw
Yohannes Gelaneh
Yonas Ababayehu

Oromiya

Abdi Mulugeta
Abdurehaman Jemal
Alemu Dhabessa
Alemu Dobessa
Awel Idris
Bahiru Tujuba
Belayneh Mengist
Caalii Noonno
Damene H/Gebriel
Dawit Admassu
Elias Ahmed
Jemal Alemu
Kedir Abdella
Kifle Demisse
Lalise Eba
Leta Ayele
Mamo Bekele
Meseret Mengesha
Mohammed Rashad
Mohammed Rashad
Mohammed Sai Kedir
Mohammed Sali
Seife Redahegn
Shibru Fekadu
Silenat ALemu
Sofia Habib
Teklu Merga
Teklu Merga
Temesgen Worku
Zelalem Daniel
Zelalem Marema

SNNP

Abdu Surur Rijeto
Abebaw Fogi
Abebe Beshda
Achame Enbulo
Alemayehu Gunuro
Alemayehu Taye
Almaz Magetto
Amirela Habib
Asseffa Alemu
Ayelech Gebremariam
Bilcha Galleta
Birhanu Ware
Degu Tina
Eshetu Bekele
Eyerusalem Wolde
Girma Yimra
Habtamu Cheru
Lao Kono
Mamecha Abite
Maru Jinjima
Mekonnen Gerito
Meseret Ketsela
Minilik Gashaw
Nesrya Alewi
Nigusse Acha
Seid Alfa
Shibiru Gale
Solomon Tesfaye
Tarikua Alemayehu
Yosef Oyisa

Tigray

Abeba Desalegn
Abrehet Zeray
Abrha Fissha
Addisu Fisseha
Aklil Haftu
Alganesh Mehari
Almaz Gebremeskel
Altayesh Alemayehu
Amanuel Tesfaye
Asrat Woldegertma
Ataklti Birhane
Bitewaded Birhane
Equar Gebre (Sr.)
Etenesh Getahun
Etsay Seyoum
Gebreegziabher Desta
Gebreegziabher Ebuy
Gebreegziabher Yohannes
Gebrehiwot Girmay
Gebremedhin Alemayehu
Gebrewahid Yohannes
Hagazi Gebremedhin
Hailay Meles
Haregot Gebrekidan
Huluagerish Kassaye
Kalayu Tsebeyom
Kibrom Mulualem
Kindeya Halefom
Letekidan Hailemichael
Meles Solomon
Mesele Woldemariam
Mesfin Gebremedhin
Mohammed Seid
Muiz Taddesse
Mulu Gebremedhin
Nigisti Gebreegziabher
Seble Mehari (Sr.)
Tekle Zeru
Teklekiros Giday
Tesfazghi Gebrehiwot
Tiblets Kassa
Tsegay Abraha
Wehabirabe Resku
Worku Menberu
Yirga Ebuy
Yonas Tsega
Yousuf Ibrahim
Zaid Hagos
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