Federal Ministry of Health

Ethiopia Health and Nutrition Research Institute

Baseline Evaluation of Maternal and Newborn Health Care Services in 25 Selected Woredas

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of

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ETHIOPIAN HEALTH AND NUTRITION RESEARCH INSTITUTE (EHNRI)

Health System Research Directorate

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CONTRIBUTORS

1. Ethiopian Health and Nutrition Research Institute (EHNRI)

- Mr.Atkure Defar
- Mr.Mekonen Tadesse
- Mr.Teodros Getachew
- Mr.Habtamu Teklie
- Mr.Elias Asfaw
- Mr.Sabit Ababoro
- Mr.Abebe Bekele
- Dr.Yebeltal Assefa
- Dr. Amha Kebede

1. Federal Minster of Health (FMoH)

- Dr. Mengistu Hailemariayam
- Dr. Martha Menweyelet
- Mr.Mohammod Reshid

2. Technical assistants (JaRco)

- Mr.Terefe Gelibo
- Dr. Shelina Musaja

3. Children Investment Foundation Fund

- Dr. Lucy Heady
- Ms.Chelsea Coakley

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Executive Summary

Introduction: Ethiopia is one of the first countries in Africa to make a strong commitment and make a center for its national development strategy in order to reach each of the MDG targets. According to the 2010 estimate by the UN agencies, the maternal mortality ratio declined to 350 deaths per 100,000 births from 700 in 2000—recording an average annual rate of 6.9 percent reduction over the ten-years period. The rate of reduction is relatively slow and this insufficient progress calls for renewed attention to diagnose the bottlenecks and design interventions that address the bottlenecks and significantly contribute to reduction of maternal deaths in the country.

Limited availability, utilization and poor quality of maternal and newborn care are counted as among the main bottleneck to achieve the desired goal. Unlike other safe motherhood cares, there is too little information regarding utilization and quality of maternal and new born care in Ethiopia.

Objective: The overall objective of the study was to conduct a baseline evaluation on the utilization and quality of maternal and newborn health services that enable to compare the effect of intervention with midline and end line evaluation.

Methods: A cross-sectional study design was employed to collect the baseline data using both qualitative and quantitative techniques. This baseline assessment was conducted in 4 hospitals, 123 health centers, and 307 health posts among 25 woredas selected from Amhara, SNNP, Oromiya and Tigray Regions from July to August, 2013. A retrospective review of obstetric services, records, documents, cards and/or registration books of mothers treated and/or served in health facilities for last 12 months prior to the study period was conducted, and furthermore there were selected key informants (Woreda health office, Health center and Hospital head and HEW and religious leader) and FGD (among Mothers and Health development army) participants. Data were collected using standardized questionnaires developed by World Health Organization (WHO). Data quality assurance was guaranteed during the assessment and each data were checked regularly for its completeness and accuracy. Quantitative data analysis was done using EPIInfo and SPSS. Qualitative data analysis process focused on populating the conceptual framework through categorizing supply and demand side determinants, which focuses on the main thematic areas of quality, context and practice.

Results: Adequate availability of infrastructure is a crucial prerequisite for effective MNH services delivery. It is extremely difficult for the clients to seek health care and also difficult for health care provider to offer quality services without physical space (rooms), beds for clients and source of electricity and running water. Similarly, functional mode of transport and communication systems is essential for timely and quick referral of emergency patients to a next higher level of health care facility.

In the surveyed areas, topographically all hospitals and half 52% of health centers and health posts were located in flat areas.

All hospitals, 54.50% of the health centers and 11.3% health posts had a regular supply of electricity during the survey time. Out of the total surveyed health facilities, 65.9% of health centers, 44% of health posts and 75% hospitals had regular water supply. Seventy five percent of hospitals and 85.4% health centers reported a functioning mode of transport for referral purposes (determined by a functioning ambulance or other type of motor vehicle). Virtually 59% health posts have means of transport facility for referral cases other than walking but families were responsible to make such arrangements on their own.

Currently all hospitals, all health centers and 279 (90.3%) of health posts accept pregnant women and their newborns for care during work hours and working days (8 hours a day, 5 days a week). Twenty four percent of health centers reported they have used case management checklists. About 19.5% of health centers charged fee for services or required women to buy supplies for the services. However, the overall percentage of deliveries at health facility was 29%. Six percent of pregnant women were made four or more ANC visits during the length of their pregnancy at health centers and hospital which is lower compared to national coverage. The average number of newborns who have got the care within two days of birth was found to be 61 per health center in the last 12 months. All the four hospitals have CEmONC services and of the 123 health centers, 66.7% health centers provided BEmONC services in the last 12 months. The most common reasons mentioned for not performing signal functions were due to lack of supplies/drugs/equipment (58.54%), 'training issues' or the lack of human resources (17.89%) and no patient indication (13.01%. Overall, there is a great training need to provide MNCH services in the surveyed areas: For instance, HEWs in Tigray region trained in clean and safe delivery was extremely low (9.5%)

specific to Kefta Humera Woreda, none of the HEWs trained in clean and safe delivery. There was a serious lack of supplies and drugs, which are essential at the time of MNCH service delivery to ensure that services are provided properly and 30.9% of health centers record maternal death audit. Concerning immediate and essential newborn care all hospitals provide neonatal resuscitation services except Adola Hospital (Oromia) and Maereg Hospitals (Tigray) lack services for advanced resuscitation support and pediatric nursery services. At health center level, 83.7% of health centers have basic neonatal resuscitation services, for immediate and essential newborn care services only 6.5% have incubator for newborn care, 6.5% have always advanced neonatal support services, and 6.5% have pediatric nursery services. About forty nine percent of health centers did not have a functioning mask to perform newborn ventilation, which is unacceptable in any facility where women deliver. There was a serious lack of sterile gloves (0%) at health post, which are essential at all health facilities. More than half health facilities had no staff trained in CFP (54.5%) and NCT (79.7%) respectively. Out of the total health facilities surveyed, 69.1% had HMIS record filing system (in the form of protocols or formats), 18.7% started electronic health management electronic system (e- HMIS) and 24.4% of health centers reported for using case management check lists. About 20% health facilities required women to buy supplies for maternal and child health services. The most common reasons mentioned for the service charge was shortage of drugs and supplies and absence of poverty certificate by the clients. Generally, hospitals were better for MNCH service delivery than health centers and health posts even if it is not difficult to calculate statistically due to the limited number of Hospitals. Qualitative finding shows that the *use of MNCH services is increasing, reflecting the rise of MNCH on the political agenda and concomitant budget commitments, however, broader mechanisms to translate programme readiness into sustainable system are not functioning well, which compromises quality of available services. Overall, it appears that women in the CIFF project areas of the 4 regions were not sufficiently aware of danger signs of maternal and newborn illnesses that indicate the need for treatment.*

Conclusion and recommendation

Conclusion: This baseline survey sets benchmarks and useful information concerning maternal and newborn health for the CIFF program interventions in the four most populous regions of Ethiopia. Whereas, the four regions finding indicated the intervention relevance for the broader

understanding and framing of program intervention activities, region-specific findings are more relevant to guide intervention needs at regional and even lower levels.

A summary of the findings and recommendations are detailed below:

- Twenty nine percent of pregnant mothers in the catchment population received antenatal care from the surveyed health facility (health centers and hospital) (highest is recorded in Tigray region (52.39%) and the least is recorded in SNNPR 20.3% but only 6 % of them made four or more ANC visits during the length of their pregnancy.
- Health facility / skilled health personnel deliveries rate is 16%.
- Out of 4 hospitals, 2 lack equipment and supply for immediate and essential newborn care services (Adola Hospital and Maereg Hospitals lack advanced resuscitation support and pediatric nursery equipment and supply), 83.7% of health centers reported that they have had basic neonatal resuscitation services but only 6.5% have incubator for newborn care, 6.5% have advanced neonatal support services, 6.5% have pediatric nursery services.
- Ninety five percent of health centers were classified as BEmONC facilities.
- The most common reasons mentioned for not performing the signal function were lack of supplies/drugs/equipment (58.54%), the lack of trained human resources (17.89%) and no patient indication (13.01%).
- Out of 123 health centers surveyed only one in ten (11.4%) of them were equipped with three maternal life-saving medicines (Oxytocin, Ergometrine and Magnesium sulfate) with adequate quantities all the time.
- About 90% of health centers have health management information system, 18.7% of them started e- HMIS, 24.4% had posters (daily and weekly activity) and 24.4% reported the use of any type of case management checklist.
- The majority (79.7%) of surveyed health centers reported no staff trained in Newborn Corner, 41.4% of health posts reported that none of the HEWs trained in clean and safe delivery (Kefta Humera Woreda none of the HEWs trained in clean and safe delivery).
- Although the policy states MNH services are free of charge, around 20% health facilities required women to buy supplies for maternal and child health services.
- Of 257 women interviewed the importance of seeking health care for pregnancy was reported by 63.4%, but problems in pregnancy that might need medical treatment were reported by a very small percentage of the women , blurred vision (12.1%), reduced or

absent fetal movement(28.8%), high blood pressure(8.9%), edema of the face/hands (10.5%), convulsions(4.3%) and fever(12.5%).

- Some health education messages have been taken up and changed local practice more quickly than others
- Use of MNCH services is increasing, reflecting the rise of MNCH on the political agenda and concomitant budget commitments
- Broader mechanisms to translate programme readiness into sustainable system are not functioning well, compromising quality of available services
- Communication across different levels of the health system was poor
- Local problem solving approaches using available resources is not well functioning challenges as they emerge

Recommendation: Overall, considering this findings on the situation of MNH service provision, the indication is that there is a need for a lot of effort for reaching a level where the health facilities would be providing optimum MNCH services. The four regions combined results are relevant for the broader understanding and framing of program intervention and guide intervention activities at all levels. Based on the findings, improving maternal and neonatal health outcomes in the program areas need every effort that should be made to:

1. Expand the services and resources across all facilities. For instance health centers and health posts should made to start offering services that were limited to hospitals at a reasonable standard;
2. Address the regional disparities currently observed in the distribution of these services and resources;
    - The gap of EmONC functionality should be filled-in on priority basis (in-service training should be organized for a wide range of service providers and supplies and equipment's need to be considered altogether.
    - Strengthen the chain/mechanism to ensure availability of essential MNC medications, with appropriate equipment and supplies.
    - Reduce average duration of stock outs for all products, minimize expiry of all products through continuous stock tracking and re-distribution mechanisms.
    - There is a need for strengthening HMIS performance and standardization.

- Standardization of waiving fees and payment for MNCH services need to be addressed. Women and children with medical emergencies should not have their treatment delayed due to payment requirements. If they cannot pay for these services, their fees should be waived.
- There should be a kind of mechanism to strengthen demand creation and meeting the demands of rural communities.
- Good communication across different levels of the health system should be maintained to improve quality even in the absence of adequate financial and material resources
- There should be strong local problem solving approaches using community mobilization strategies like HDAs.

Acronyms

AIDS	*Acquired Immune Deficiency Syndrome*
AMTSL	*Active Management of Third Stage of Labour*
ARV	*Antiretroviral*
BEmONC	*Basic Emergency Obstetric And Newborn Care*
CAC	*Complete Abortion Care*
CEmONC	*Comprehensive Emergency Obstetric And Newborn Care*
CFP	*Comprehensive Family Planning*
CIFF	*Children Investment Fund Foundation*
EDHS	Ethiopia Demographic and Health Survey
EHNRI	*Ethiopian Health and Nutritional Research Institute*
FMoH	*Federal Ministry of Health*
FP	*Family Planning*
GP's	*General Practitioner's*
HEW	*Health Extension Worker*
HC	*Health Centre*
HIV	*Human Immunodeficiency Virus*
HMIS	*Health Management Information System*
HDA	*Health Development Army*
HPDP	*Health Promotion and Disease Prevention*
ICCM	*Integrated Community Case Management*
IEC/BCC	*Information Education Communication/Behavioral Change and Communication*
IMNCI	*Infant, Maternal , Newborn and Child illness*
IRT	*Integrated Refresher Training*
IUCD	*Intrauterine Contraceptive device*
IV	*Intravenous*
KPI	*Key Performance Indicators*
NCT	*Newborn Corner Training*

NF	*Non- functional*
NICU	*Newborn Intensive Care Unit*
LBW	*Low Birth Weight*
MDG'S	*Millennium Development Goal's*
MNCH	*Maternal, Newborn and Child Health*
MNT.	Maternal and neonatal Tetanus
NGO	Nongovernmental Organization
PHCU	*Primary Health Care Unit*
PHCW	*Primary Health Care Worker*
PID	Pelvic Inflammatory Disease
PMTCT	*Prevention of Mother To Child Transmission*
PPH	*Postpartum Hemorrhage*
RHB	*Regional Health Bureau*
SNNPR	*South National Nationalities And Peoples Region*
STI	*Sexually Transmitted Infection*
TWG	*Technical Working Group*
WHO	*World Health Organization*

1. INTRODUCTION

1.1. Country Profile

Ethiopia, officially known as the Federal Democratic Republic of Ethiopia, is a country located in the Horn of Africa. It is bordered by Eritrea to the north, Djibouti and Somalia to the East, Sudan and South Sudan to the west, and Kenya to the south. The country follows a federal government structure composed of nine Regional States: Tigray, Afar, Amhara, Oromia, Somali, Benishangul-Gumuz, Southern Nations Nationalities and Peoples Region, Gambella, Harrari and two city Administrations (Addis Ababa and Dire Dawa)**[1,2].**

With over 93,000,000 inhabitants, Ethiopia is the most populous country in the world, and the second-most populated nation on the African continent having a multilingual society in which 80 ethnic groups, with the two largest being the Oromo and the Amhara. It occupies a total area of 1,100,000 square kilometers, and its capital and largest city is Addis Ababa. Ethiopia is one of the oldest locations of human life known to scientists and is widely considered the region from which *Homo sapiens* first set out for the Middle East and points beyond **[2].**

The population increased at an average rate of 2.6 percent per annum between 1994 and 2007and concentrated in the highland areas, in the central and northern regions. About 84 percent of the total population lives in rural areas, making Ethiopia one of the least urbanized countries in the world. Seventeen point five percent of the population is aged less than 5 years, 43.5% of the population are under 15 years, 51.9% are between 15 and 59 years and 4.6 % are aged 60 years and above. Twenty four percent of the populations are women in the reproductive age group (15-49 years). In order to systematically address the health care needs of the population, the health sector in Ethiopia has introduced a three-tiered health care delivery system. *The first level* is the Woreda (District) health system, which comprises of a primary hospital (with population coverage of 60,000 to 100,000 people), health centers (1/15,000 to 25,000 population) and their satellite health posts (1/3,000 to 5,000 population), which are all connected to each other through a referral system. One health centre and five health posts in the catchment area form a Primary Health Care Unit (PHCU). There are currently over 34,000 government salaried health extension workers (HEWs) working in pairs, in over 15,000 health posts throughout the country, providing promotive, preventive and basic curative care at the community level[1,3]. The HEWs are supported by a Health Development Army. *The second level* in the tier is a General Hospital with population coverage of 1 to 1.5

million people and *the third level* is a Specialized Hospital that covers a population of 3.5 to 5 million.

Concerning maternal and child morbidity and mortality status, Ethiopia is one of six countries sharing 50% of total world burden of maternal mortality with MMR of 676/100,000 live births even if The recent (2010GC) estimate of UN for Ethiopia shows 350 of MMR per 100,000 births from 700 in 2000GC. The most recent estimates of still birth and neonatal mortality rates indicated that one in every 17 Ethiopian children dies before the first birthday, and one in every 11 children dies before the fifth birthday(2).The National Infant and Under-five Mortality Rates are still high about 59/1000 and 88/1000 respectively. About 472,000 Ethiopian children die each year before their fifth birthday; place Ethiopia sixth among the countries of the world. Indicators of maternal and child care at the community and health facility levels demonstrate that the coverage and utilization rate of preventive and promotive services is low. Thirty-four percent of women who gave birth in the five years preceding the survey received antenatal care from a skilled provider, that is, from a doctor, nurse, or midwife, for their most recent birth [2].

1.2. Background Information

Maternal health is important to communities, families and the nation due to its profound effects on the health of women, immediate survival of the newborn and long term well-being of children, particularly girls and the well-being of families. Pregnancy and childbirth are generally times of joy for parents and families. But in many countries and communities, they are also periods of great risk to the health and survival of women and newborns. Every day, around 1,500 women die from complications related to pregnancy and childbirth. Since 1990, the estimated annual number of maternal deaths worldwide has exceeded 500,000 – amounting to almost 10 million maternal deaths during the past 19 years **[4]**.

Skilled birth attendance and emergency obstetric care are two recent strategies promoted to reduce maternal mortality **[4, 5].** Yet, even if the capacity to supply emergency obstetric care (EmOC) is the minimum starting point, it must be coupled with strategies to reduce delays in receiving care and to increase care coverage. Therefore, the intrapartum health care strategy constitutes, to date, the combination of interventions best suited to produce significant declines in maternal mortality rates **[6].** The intrapartum health care strategy aims at ensuring deliveries in health centers with midwives and their assistants. These qualified personnel are able to provide adequate essential

obstetric care to women. However, they must also be able to detect complications and handle them, either by giving basic EmONC or by referring the most complicated cases to well-equipped hospitals for complete EmONC. Even when the best combinations are identified, many obstacles must still be overcome. Among them is the inadequacy of human resources (HR) in developing countries. In the health sector in general, and in maternal health in particular, health care professionals are at the heart of the success of EmONC interventions. The performance of any health system, and thus the improvement of a population's health, depends on the productivity, competence, availability and responsiveness of health professionals **[7-11].**

Good quality maternal health services are those which, among others, are readily accessible; are safe, effective, acceptable to potential users and are staffed by technically competent people; provide prompt comprehensive care and/or linkages to other reproductive health services; provide continuity of care, and where staff are helpful, respectful and non-judgmental**[12].**

There are many factors that affect the outcome of pregnancy from the onset of any obstetric complication. The outcome is most adversely affected by delayed treatment. Delay in treatment is the result of many factors. These delays are described as the three phases of delay **[13].**

Delay I: Lack of information and adequate knowledge about danger signals during pregnancy and labor; cultural/ traditional practices that restrict women from seeking health care;

Delay II: Out of reach of health facilities; poor road, communication network, community support mechanisms **Delay III:** Inadequate skilled attendants; poorly motivated staff; inadequate equipment and supplies; weak referral system, procedural guides. The third delay is where the state of health facility takes on the destiny of the woman and where most care should be taken.

1.2.1. Magnitude of Maternal and Neonatal Mortality

Globally, at least 585, 000 women die each year by complications of pregnancy and child birth (1). More than 70% of all maternal deaths are due to five major complications: hemorrhage, infection, unsafe abortion, hypertensive disorders of pregnancy, and obstructed labor. The majority of maternal deaths (61%) occur in the postpartum period, and more than half of these take place within a day of delivery. An estimated 40% of pregnant women (50 million per year) experience pregnancy-related health problems during or after pregnancy, and

childbirth, with 14% suffering serious or long term complications. As a consequence, 300 million women suffer from pregnancy-related health problems and disabilities, including anemia, uterine prolapse, fistula, PID, and infertility **[15].** Nearly two-third of the 8 million infant deaths that occur each year was largely from poor maternal management of delivery, and lack of essential care of newborn **[16].** The divide between the industrialized countries and developing regions, particularly the least developed countries, is perhaps greater on maternal mortality than on almost any other issue **[13, 25].** Ethiopia is one of six countries sharing 50% of total world burden of maternal mortality with MMR of 676/100,000 live births **[17].** Through several major initiatives and resolutions such as "A Promise Renewed," Every Woman Every Child and the UN Commission on the Status of Women's resolution on eliminating preventable maternal mortality countries around the world have committed to reducing preventable deaths of mothers and of children fewer than five years of age. The global percentage of child deaths occurring during the newborn period is now 43%. Making focus on saving newborn lives essential to reaching this goal and achieving MDG 4.

1.2.2. Availability of MNCH Services and Trained Staff (Facility-Level Infrastructure, Resources, Management, and Support)

This part focuses on services, resources, management, and support systems at the facility level. The availability of a basic package of health services, the frequency with which these services are offered, the presence of qualified staff for their delivery, and the overall ease of access to the health care system all contribute to client utilization of services in a health facility. The Ethiopian health care service delivery system comprises a network of facilities that provide both preventive and curative health services. Concerning maternal and newborn health care services, most hospitals and health centers are expected to offer a full range of basic maternal and newborn health care services (antenatal, delivery, and postnatal care); family planning; treatment of sexually transmitted infections (STIs); immunization; and child growth monitoring. However, some specialized facilities (such as standalone VCT facilities) may not offer all services. If a facility does not offer all services, it should not be assumed that the facility is substandard. Clients may have to visit several facilities, however, to meet all of their family's basic health care needs. The World Health Organization (WHO) defines a skilled birth attendant as "an accredited health professional – such as a midwife, doctor or nurse – who has been educated or trained in management of uncomplicated deliveries and post-natal care and in the identification, management and referral of complications in

women and newborns." It recommends that countries should have an average of 2.28 health-care professionals per 1,000 populations to achieve adequate coverage of skilled health personnel at delivery. Of the 57 countries that fall below this threshold, 36 are in sub-Saharan Africa. The greatest shortage of health workers in absolute terms is in Asia, especially Bangladesh, India and Indonesia, but the largest relative need is in sub-Saharan Africa, where the number of health workers must increase by 140 per cent to reach the requisite density. With AIDS, poverty and political insecurity fostering the migration of health workers worldwide, particularly in sub-Saharan Africa, developing countries face the challenge of devising sustainable initiatives for enhancing recruitment, training and retention of skilled health personnel. Midwives or other mid-level providers who have been trained for shorter periods and require lower entry education qualifications can form one cadre within a spectrum of health workers who can undertake different roles, distribute workloads, and build a referral system for women and newborns. In Mozambique, for example, midwives and nurse midwives have helped obstetricians provide cost-effective quality emergency obstetric care functions in under-serviced areas, while in Peru, community health workers pay monthly visits to high-risk households that include children under one year old, pregnant women and women of childbearing age. Several countries, such as Mali and Pakistan, have begun to broaden retention strategies, including such material incentives as accommodation, equipment and transportation in exchange for service in rural areas, and such non-financial benefits as short-term rotations and psychosocial support groups **[31, 32].**

Safe water, sanitation, and hygiene facilities and practices: Clean delivery practices are vital to safeguard the health of mothers and newborns from infections. Severe infections, which are often associated with unhygienic delivery practices and unsafe water and poor sanitation, accounted for 36 per cent of neonatal deaths. Promoting hygienic delivery practices and immunization has contributed to a significant reduction in the incidence of maternal and neonatal tetanus**.**

Proven, cost-effective interventions can reduce maternal and newborn deaths by three-quarters without the need for intensive care. Many of these interventions can be delivered through antenatal care, skilled delivery, and postnatal care visits, which represent major opportunities to reach mothers and their babies with lifesaving services that often bring long-lasting health and developmental benefits. Improved care at birth is also the most important strategy for reducing stillbirths.

Maternal and newborn health care services: The essential services required to support a continuum of maternal and newborn care include enhanced nutrition; safe water, sanitation and hygiene facilities and practices; disease prevention and treatment; quality reproductive health services; adequate antenatal care; skilled assistance at delivery; basic and comprehensive emergency obstetric and newborn care; post-natal care; neonatal care; and Integrated Management of Neonatal and Childhood Illnesses **[32].**

For maternal and newborn health, health care services include essential obstetric care (EOC) at the primary and referral level (Health post, health Centre and hospital) in order to minimize delays and receive adequate treatment at the facility. Based on community input, the health service environment, including the services provided and the forms of care, can be modified to make services more responsive, adequate, appropriate, and gender and culturally sensitive to women, men, families and communities. Some examples of issues that can be addressed include service hours for emergency and for assuring male involvement, waiting times, respectfulness, room colors and temperature, providing appropriate information and counseling, availability of providers that speak local languages, access to family members during care and birth, appropriate equipment for EOC, and returning the placenta after birth **[32].**

Adequate antenatal care: Much ill health among pregnant women is preventable, detectable or treatable through antenatal visits. UNICEF and WHO recommend a minimum of four antenatal visits. These visits enable women to receive key interventions, such as tetanus immunization, screening and treatment for infections, and vital information on complications during pregnancy and delivery. Most of the data relate to women who have received at least one antenatal visit. In the developing world as a whole, three quarters of pregnant women received antenatal care from a skilled health provider at least once, though many do not receive the recommended four visits **[32].**

EDHS 2011 indicated that 34% of pregnant mothers who gave birth in the five years preceding the survey received antenatal care from a skilled provider **[2].**Urban women are almost three times more likely than rural women to receive ANC from a skilled provider. Seventy-six percent of women residing in urban areas received ANC services from a skilled provider for their last birth compared with 26 percent of women in rural areas **[2].**Nineteen percent of women with a live birth in the five years before the survey made four or more ANC visits during the length of their pregnancy and 11% of women made their first ANC visit before the fourth month of pregnancy **[2].**

Skilled assistance at delivery: No substitute exists for the assistance of skilled health personnel at delivery. There has been a marked increase in skilled attendance in all regions of the developing world over the past decade, except in sub-Saharan Africa. During the 2000–2007 periods, skilled health workers attended 61% of the total number of births in the developing world. The two regions with lowest coverage, South Asia (41%) and sub-Saharan Africa (45%) also have the highest incidence of maternal mortality. For the developing world as a whole, deliveries of women from the poorest fifth of households are around half as likely to be attended by skilled health workers as those from the richest households. WHO recommends that skilled birth attendants administer active management of the third stage of labour (which follows completed delivery of the newborn and lasts until the completed delivery of the placenta) for all mothers a procedure that is the most widely accepted method to reduce post-partum hemorrhage, a leading cause of maternal death.

Basic and comprehensive emergency obstetric and newborn care: Timely care in a medical facility is sometimes necessary to save the life of woman experiencing complications during childbirth. Trained health personnel should not only be able to assist with a normal delivery or a delivery with moderate complications, they should also be able to recognize serious complications that require referral for more specialized emergency care. Studies have shown that around 15 per cent of live births are likely to need emergency obstetric care and Caesarean sections may be required in 5–15 per cent of births. It is evident that there are many important gaps in coverage, especially in rural areas of sub-Saharan Africa, where rates of Caesarean section are around 2 per cent. The quality of care delivered is critical: To provide adequate assistances, facilities must have sufficient medicines, supplies, equipment and trained personnel. Factors hindering the provision of and access to emergency obstetric care include cost, distance, lack of personnel, and cultural barriers.

Emergency obstetric and newborn care signal functions: The availability of EmONC determines the ability of health care system to respond to obstetric and newborn complications and its contribution to reduce maternal and newborn mortality and morbidity. The UN has defined nine essential EmONC services termed as "Signal Functions" for the treatment and management of MNH complications. The designation of an EmONC facility depends upon round-the-clock availability of services and whether these life-saving signal functions have been performed recently. To qualify for a Basic EmONC (BEmONC) facility, the health centers and hospitals must have performed the following seven signal functions within the past three months **[30].**

1. Administered parenteral antibiotics;
2. Administered parenteral anticonvulsants(magnesium sulfate) ;
3. Administered parenteral oxtyocics;
4. Performed manual removal of placenta;
5. Performed removal of retained products (manual vacuum aspiration);
6. Performed assisted vaginal delivery (with vacuum extractor or forceps); and
7. Performed neonatal resuscitation with bag and mask.

For a Comprehensive EmONC (CEmONC) facility, the hospitals must have performed following two additional signal functions besides above seven, within the past three months:

8. blood transfusion; and
9. Caesarean section.

The study conducted to assess the quality of obstetric care in public-sector facilities and the constraints to programming comprehensive essential obstetric and new born care (EONC) services in 2009 in rural areas of Khulna and Sylhet divisions, relatively high- and low-performing areas of Bangladesh respectively showed Distribution of the functional EONC facilities satisfied the United Nation's minimum criteria of at least one comprehensive EONC and four basic EONC facilities for every 500,000 people in Khulna but not in Sylhet region. Human-resource constraints were the major barrier for maternal health. Sanctioned posts for nurses were inadequate in rural areas of both the divisions; however, deployment and retention of trained human resources were more problematic in rural areas of Sylhet. Other problems also weighed down care, including unavailability of blood in rural settings and lack of use of evidence-based techniques. The overall quality of care was better in the EONC facilities of Khulna division than in Sylhet. 'Context' of care was also different in these two areas: the population in Sylhet is less literate, more conservative, and faces more geographical and socio cultural barriers in accessing services **[25].**

The cross-sectional of hospitals and health centers to examine the quality of maternal health services at health facilities in Eritrea in 2009 Showed, all hospitals and all health centers provided Basic Obstetric Emergency Care however; there is shortage of some basic supplies especially in health centers providing basic EmONC and only 11 of the 18 hospitals provided Comprehensive Obstetric Emergency Care including caesarian section. The national referral hospital treated 54 percent of obstetric complications, while health centers and health stations are not proportionally sharing the burden of work **[26].**.

A study conducted in Uganda in 2000 on quality of midwifery care in soroti district, Uganda shows many midwives were providing care of poor quality for both antenatal and delivery care due to their inability to identify and manage women with or at risk of pregnancy complications

A systematic review of literatures from 1950 to 2007 assessing human resources and the quality of emergency obstetric care in developing countries shows staff shortages are a major obstacle to providing good quality EmOC; women are often dissatisfied with the care they receive during childbirth; and the technical quality of EmOC has not been adequately studied. The first two conclusions provide lessons to consider when formulating EmONC policies, while the third point is an area where more knowledge is needed **[27].**

A study conducted in srilanka 2003 revealed mothers' satisfaction with perinatal care received during hospitalization for delivery the proportion of mothers who were fully satisfied varied from 10.8% to 31.4% for inter-personal aspects, and from 10.1% to 28.9% for technical aspects of care. The satisfaction rates were lower with physical environment (6.1–10.1%) and higher with outcome of care (41.0–48.0%). Multi-variate analyses indicated that mothers were more satisfied with the services available from lower level hospitals. Multiparae were more satisfied than primiparae. Determinants of satisfaction included pro-viding immediate mother–newborn contact, information after examination and counseling on family planning. Higher satisfaction with the physical environment was associated with being Moor or Tamil as opposed to Sinhalese and with lower family income **[28].**

Another study conducted in Kenya in 2008 on the state of emergency obstetric care services in Nairobi informal settlements and environments shows out of the 25 health facilities, only two met the criteria for comprehensive emergency obstetric care (both located outside the two slums) while the others provided less than basic emergency obstetric care. Lack of obstetric skills, equipment, and supplies hamper many facilities from providing lifesaving emergency obstetric procedures. Accurate estimation of burden of morbidity and mortality was a challenge due to poor and incomplete medical records **[29]**. The provision of special care for women during pregnancy through the public health services was a relatively late development in modern obstetrics **[30].**

Post-natal care for mothers and newborns: post-natal care is an area that needs urgent attention. Women seek post-natal care less often than antenatal or delivery care, and even mothers who benefit from immediate post-partum care are often neglected during the days and weeks that follow. Even when a delivery is professionally supervised, post-partum care may be limited to a single

check six weeks later. Post-natal care can improve neonatal health, too, especially in promotion of hygienic child care and early and exclusive breastfeeding. Given the multiple impediments to facility-based care following childbirth, including the costs or difficulties in arranging transportation and accommodation for family members, outreach visits can have a vital part in post-natal care, irrespective of where the birth took place.

Disease prevention and treatment: Interventions to prevent and treat infectious diseases in pregnant women are essential complements to maternity services. Two key areas of prevention and treatment relate to HIV and malaria, particularly in sub-Saharan Africa. The fight against HIV shows signs of progress: Prevalence rates among women aged 15–24 attending antenatal clinics have declined in 14 of 17 countries with sufficient data since 2000/2001 and antiretroviral therapy to prevent mother-to-child trans- mission of HIV worldwide has increased from 10 per cent in 2004 to 33 per cent in 2007. Distribution of insecticide-treated mosquito nets to pregnant women and intermittent preventive treatment of malaria – which consists of a single dose of anti-malarial drugs at least twice during pregnancy whether the pregnant woman has malaria or not – are two measures that are helping to contain malaria. Although efforts to prevent and treat HIV and malaria have achieved some successes in recent years, much more needs to be done to address the toll of these diseases **[31].**

Rationale of the Study

Nearly more than half a million maternal deaths worldwide every year occur in low- and middle-income countries (LMICs). Efforts to achieve the 4^{th} and 5^{th} Millennium Development Goal have been largely ineffective in regions with the highest maternal and neonatal mortality, notably sub-Saharan Africa **[4].** Ethiopia is one of the counties that share the toll burden of this grave. One strongly recommended strategy for reducing maternal deaths is to provide EmOC during pregnancy and delivery **[5, 23].** Access to good obstetric care (OC) would prevent 50% to 70% of maternal deaths, reduce neonatal mortality by 10% to 15%, and substantially reduce the number of women living with sequelae of obstetric complications **[6, 9, 24].** Good quality is essential not only in Comprehensive emergency OC, but also in basic OC, to detect complications early.

Despite the fact that availability, utilization and quality of MNCH care is essential in averting maternal and neonatal deaths, further improve of maternal and child health, little is known about the current levels of care in Ethiopia. It is very crucial to note that the desired outcome is a continuum

of care from home to hospital with all essential MNH quality care services effectively provided at all levels and are to be linked with efficient referral systems. Establishing effective continua of care will involve taking practical steps to strengthen health systems. Given the particular challenges, risks and opportunities associated with pregnancy and childbirth, certain areas require more focused attention. These include deepening the evidence base, expanding and enhancing the health workforce, upgrading and broadening infrastructure and logistics, providing equitable financing solutions, stimulating the demand for care through social mobilization, ensuring the quality of care, and fostering political commitment and leadership through collaboration. This evaluation therefore aims to fill these gaps. The purpose of this study is to understand the quality and utilization of maternal and newborn health care in 25 CIFF woredas of four regions. It is hoped that the results of the study will improve local as well as regional understanding availability, utilization and quality of MNHC particularly in the study area and serve as an important tool for any possible intervention aimed at improving access, utilization and quality particularly in study area.

2. OBJECTIVE

2.1. General Objective

The overall objective of the survey is to conduct a baseline evaluation on the availability, utilization and quality of maternal and newborn health services in selected 25 districts in four regions of the country.

2.2. Specific Objectives

The specific objectives of the baseline study include:

1) To estimate rates of MNCH service related indicators in selected health facilities
2) To assess the availability and functionality of essential equipment and supplies, including drugs.
3) To assess training needs of health service providers in selected health facilities.
4) To assess quality and utilization of Maternal and newborn health services
5) To assess the awareness of mothers on maternal and newborn health problems
6) To explore awareness, perception and practices related to MNCH services among mother other health cadres including religious leaders

Research Questions

1. What is the actual infrastructure, capacity of providing services, and quality of services being provided at the sites where the population receives health services?
2. What are the quantities of services being provided?
3. Can changes over time be monitored to measure sustained improvements or deterioration in the provision of maternal and newborn health services?

3. METHODS AND MATERIALS

3.1. Study area and period

Ethiopia follows a federal government structure composed of nine Regional States and two city Administrations, further subdivided into 68 zones consisting of about 770 rural woredas. This baseline assessment was conducted among four populous regions which account more than 86 % the total populations in Ethiopia. A total of 25 woredas were selected from the four regions (7 woreda from SNNP, 7 woreda Amhara, 9 wordas from Oromiya and 2 woreda from Tigray Regions). .

3.2. Study Design

A cross sectional study design using both qualitative and quantitative data collection methods were used.

3.3. Survey Population

In the survey, the population under study is the health facilities in selected woredas in the 4 regions of Amhara, SNNPR, Tigray and Oromiya in Ethiopia that will be supported by CIFF to improve maternal and newborn health service. The MOH select those Woredas considering the facilities not supported by any partners with the same intervention activities and priority districts by their respective regions the baseline survey has adopted the definition of a health facility as all hospitals, health center and selected health posts. The strategy for the program impact evaluation includes future comparison of health facilities targeted by the program and those not targeted. In addition to the target health facilities, the following populations were also included in the baseline survey: The survey focuses on the following groups of respondents to generate the survey indicators. These are: Health extension workers (HEWs), Head of Health center, Hospital administrators, Woreda Health office head, HDA, community leader, religious leader, women with children and pregnant women. The quantitative data were primarily collected from all hospitals, health centers and 50% of health posts in the target area.

Woreda Selection

Twenty five woredas within the 4 regions of Amhara, Oromiya, SNNPR and Tigray were purposefully selected by regions based on their performance and the absence of other similar program implementing agencies.

Within the 25 intervention woredas, a list of Hospitals, health centers and health posts were provided by FMoH as the base for sampling. Table 1 below displays the region, the number and percentage of health facilities with type of facility table

Table 1 Existing number and percent of health facilities in the selected woredas of four regions

Region	**Health facilities selected for quantitative survey**					**Total HF to be Assessed**
	Hospital	Health Center	Health centers (NF)	Health post	50% Health post	
Amhara	1	38	1	180	92	131
Oromiya	1	36	10	159	82	119
SNNPR	4(3 NF)	40	9	207	105	149
Tigray	1	9	0	49	25	35
Total	7	123	20	591	304	434

* 50% of the health posts under each health center were included. Lists of the selected health posts were provided for regional coordinators.

* The minimum total number of FGD was equal to the total number of woreda addressed.

3.4. Sample Size and Sampling Techniques

World health organization (WHO) manual (references) recommends the use of all health intuitions in the area if less than 100 in number for evaluation of emergency obstetric care performances **[16].**Therefore, all health facilities (Hospitals and health centers) and 50% of health posts were included that provide maternal and newborn care in the regions of selected woredas of the four regions.

3.5. Data Collection

Multi-method approaches were used to collect data for the baseline survey. These include review of records the collection of quantitative data through structured questionnaires and qualitative data through in-depth interview, client exit interview and focus group discussion guides. The sources of the data were grouped into two categories: facility and community.

The following subsections describe the different data collection methods that were used for this baseline survey.

Facility assessment was done among, all health centers, hospitals and 50% Health posts. A retrospective review of MNCH care services, records, documents, cards and/or registration books of mothers treated and/or served in 25 woreda health facilities for the last one year was done.

Service site or facility indicators

These are obtained through interviews with spokespersons from the facility and/or through direct examination of stocks and inventories. The indicators are generally of the form, number of health facilities offering a specific service or having certain necessary items. Representative examples include number providing essential obstetric care, number deliveries conducted, number maintaining various records, number with certain equipment or materials, number that had stock outs of essential drugs in previous 12 months.

Staff indicators

These are obtained through personal interviews with staff members. The indicators are usually expressed in the form of percentage of staff with specific characteristics. Representative examples include percent of staff trained in Comprehensive Emergency Obstetric and neonatal Care (CEmONC), Basic Emergency Obstetric and neonatal Care (BEmONC), Newborn Corner Training (NCT), new born Intensive Care Unit (NICU), Integrated management of neonatal and childhood illnesses (IMNCI), complete abortion care (CAC), and Comprehensive Family Planning (CFP) in the last 12 months.

The following sorts of information were collected through facility questionnaires (Quantitative):

- Health facility infrastructure information (building and water supply characteristics)
- Health Service Component
- Human Resource for Health (HRH)
- Logistics Management Information System (LMIS)
- Health Management Information System(HMIS)
- Health care Financing
- Checklists for case management

Client indicators

These are obtained through personal interviews with the clients using interviewing checklist/guide. The indicators are generally of the form, percent of clients receiving a given procedure or intervention. Representative examples include percent of caretakers of sick children who were

sufficiently satisfied with the care received that they would encourage others to bring in a sick child, pregnant mother and laboring mother or mother with obstetric complications.

The following sorts of information were collected through qualitative method using focus group discussion and In depth interview:

1. General community information
2. Knowledge and awareness about Maternal and newborn health care
3. Community demand and preconditions for services
4. Community experience with services and perceived quality of the services
5. Community experiences with newborn care

3.6. Data quality control

For consistency and quality assurance, data was collected from multiple registers/records which were simultaneously cross-checked and supervised. Also quality of data was assured through 5 days of refresher training for data collectors and supervisors was given to check on the proper data collection at all stages. The supervisors and principal investigator collected the filled formats and checked them for completeness, consistency and clarity.

Data was entered using EPI-INFO. Post coding, office editing, and translation of the languages open ended responses was done in the office. Experienced data entry clerks were involved. The data entry teams were 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. Double entry of data were done using EPI Info to ensure data quality and using SPSS 16 version, coding and data cleaning were done. Data entry was centralized at the EHNRI office in Addis Ababa.

Variables of the Study

- Socio-demographic and economic factors
- EmONC outcomes
- Maternal outcomes
- Newborns outcomes
- Availability of supplies, equipment and essential drugs
- Human resource

- MNCH service utilization

3.7. Data Analysis

Quantitative data analysis was done using SPSS 16 version package. The data was cleaned again for inconsistencies and missing values. After categorizing and defining variables descriptive statistical analyses and bivariate analysis like the chi square test to assess differences in proportions, and the t-test to assess differences between means were done.

Qualitative data analysis process focused on populating the conceptual framework below, highlighting determinants that appeared to be particularly important in shaping access to and use of services, and that would be *amenable to intervention*. The qualitative findings of MNCH service has been categorized as supply and demand determinants which have main themes of quality, context and practice (**Figure 1**).

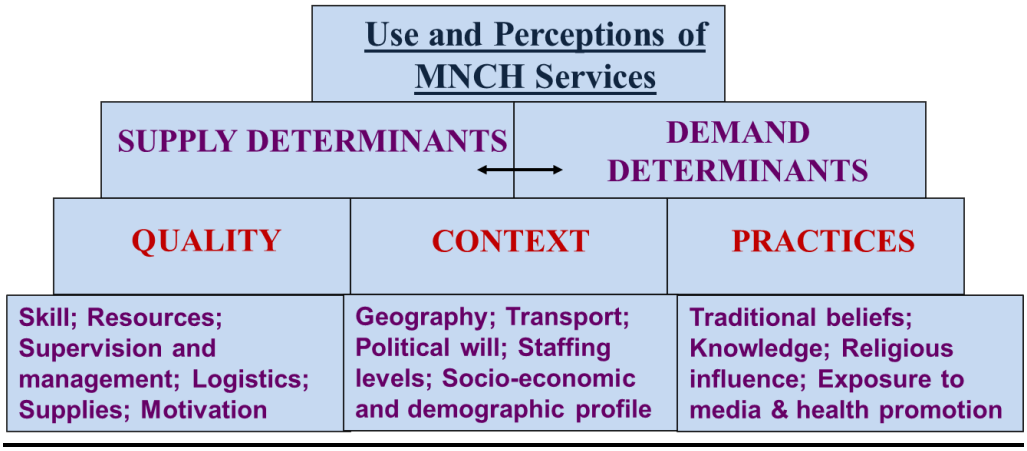

Figure 1 Conceptual framework uses to help structure qualitative analysis in this intervention program evaluation

3.8. Operational Definition

- **Emergency Obstetric Care**: refers to care provided in health facilities to treat direct obstetric emergencies that cause the vast majority of maternal deaths during pregnancy, at delivery and during the postpartum period.
- **Basic Emergency Obstetric Care**: refers to lifesaving services for maternal complication being provided by a health facility or professional which must include the following seven signal functions: administration of parenteral antibiotics; administration of parenteral oxytocic drugs; administration of parenteral anticonvulsants for pre-eclampsia and eclampsia; manual removal of placenta; assisted vaginal delivery and newborn resuscitation.

- **Comprehensive Emergency Obstetric Care**: refers to basic emergency obstetric care plus two other signal functions: performance of caesarean section and blood transfusion.
- **EmOC Facility:** refers to whether a facility is fully functioning as either a basic or comprehensive facility. Functioning is defined by nine signal function
- **None EmOC Facility:** A health facility that has performed none of the signal functions ithe last three months.
- **Availability of EmOC Services**: Basic emergency obstetric care (BEmOC) and comprehensive emergency obstetric care (CEmOC) providing lifesaving obstetric procedures including surgery. The UN Guidelines suggest minimum acceptable levels: there should be one facility providing CEmOC; and five facilities providing BEmOC for every 500 000 populations.
- **Accessibility of EmOC Facility**: Geographical distribution of EmOC (appropriate location of facility, time…..)
- **Skilled Attendant**: An accredited health professional – such as a midwife, doctor or nurse who has been educated or trained in management of uncomplicated deliveries and post-natal care and in the identification, management and referral of complications in women and newborns(WHO).
- **Client Indication**: Cases for which the use of particular signal function was indicated.
- **Quality**: is the degree to which actual performance or achievement of the health service system corresponds to set standards.

3.9. Dissemination Plan

The final report will be submitted to FMoH and funding organization. It will also be linked to the Institute and FoMH websites for further consumption who need it. The findings will be presented on different workshop and seminars to the stakeholders and attempts will be made to publish in peer reviewed journals.

3.10. Ethical Consideration

Ethical clearance was obtained from scientific and ethical review office (SERO) of EHNRI. The investigators introduced themselves by presenting official letter of cooperation from EHNRI to regional health bureau and health facility, requesting for cooperation. Letter of cooperation was obtained from regional health bureau through a detailed explanation of the purpose of the study.

Finally, a verbal consent was obtained from head of each facility and respondents after clear explanation of the purpose of the study. For exit interview informed consent was obtained from each client.

4. RESULT

4.1. *General Overview of the Surveyed Facilities*

Number and Types of Surveyed Facilities

We have identified and surveyed a total of 434 health facilities (4 Hospitals, 123 health centers, and 307 Health posts) all over the four regions. If it were not for the fact that some of the facilities were not functional and some were incorrectly classified in the initial list (health posts to health centers and vice versa), the survey would have included all above the expected facilities and three additional health posts on previously proposed (**Table 2**).

Table 2 describes the total number of facilities by region and type of facilities, 2013

Region	Types of Health Facilities Assessed including Non functional				Total HF surveyed
	Hospital	Health Center	Health center(NF)	Health post	
Amhara	1	39 (31.7%)	1	93(30.3%)	133
Oromiya	1	29 (23.6%)	10	86 (28.0%)	116
SNNPR	1(3NF)	41(33.3%)	9	107(34.9%)	149
Tigray	1	14(11.4%)	0	21(6.8%)	36
Total	4	123	20	307	434

The recently implemented Business Process Reengineering (BPR) of the health sector has introduced a three-tier health care delivery system: level one is a Woreda/District health system comprised of a primary hospital (to cover 60,000-100,000 people), health centres (1/15,000-25,000 population) and their satellite Health Posts (1/3,000-5,000 population) connected to each other by a referral system. The primary hospital, health centre and health posts form a Primary Health Care Unit (PHCU). Level two is a General Hospital covering a population of 1-1.5 million people; and level three is a Specialized Hospital covering a population of 3.5-5 million people. Based on the current Ethiopian health tier system, oromiya region has the least number of health facilities as compared to other regions. The average number of health centers in the surveyed district was found to be five per Woreda. The mean number of population at each facility was found to be 823,533 for hospital, 26,782 for health center and 4,891 for health post. This indicated that all the facilities were agreed with the national standard based on the current health tier system. And the analysis doesn't include those facilities that were not functional

during the assessment time and they are indicated on the table 2. Table 3 shows overview of the surveyed facilities.

Table 3 Total number of Facilities and their respective total population by Woreda August, 2013

Woreda)	Health Center	Health post	Total Facilities	Population (2005E.C)	HC/P^{n} Ratio
Banja	4	18	22	174142	1:43536
Fagetalekuma	6	24	30	139806	1: 23, 301
Guanga	4	11	15	246761	1:61, 690
Guangashlkuda	4	15	19	123870	1:23,209
Wogedie	5	35	40	149556	1:29,911
Saynte	7	32	39	160363	1:22,909
Legambo	9(1NF)	35	45*	182522	1:20,280
Bensa	8(3NF)	30	37	298049	1:37,256
Bona Zuria	4(1NF)	43	49*	152499	1:38,125
Dara	6(1NF)	36	42	187405	1: 31,234
Borricha	8(3NF)	35	43	280564	1:35,070
Loka Abaya	6(1NF)	26	32	117781	1:19,630
Alicho Worero	5	24	29	109771	1:21,954
West Azernet	4	17	21	71042	1:17,760
Arero	3	20	23	39221	1:13,074
Dhas	4	11	15	29139	1:7,285
Dillo	2(1NF)	11	13	27091	1:13,545
Teltelie	5(1NF)	22	27	74413	1:14,883
AdolaRede	4	18	23*	133449	1:33363
Girja	2(2NF)	7	9	58980	1:29,490
OdoShakiso	3	22	25	137838	1:45,946
SebaBoru	4(2NF)	19	23	112983	1:28,246
Wadera	2(3NF)	13	15	59400	1:29,700
Kafta Humera	9	13	22	106859	1:11,873
Tsegedi	5	23	29*	120626	24,125

* Indicates the inclusion of hospitals on the sum of total facilities.

HC: Population ratio doesn't consider non functional HCs

4.2. *Availability of Basic Infrastructure of Facilities*

The presence or absence of some infrastructure items such as electricity, clean water, client toilet and transportation and communication facilities are crucial in dictating client's image for the health facility and hence their level of satisfaction. Furthermore, staff adherence to standard guidelines and protocols at the facility is affected by the presence of these items. Transportation accesses to facilities are mainly influenced by the topography. Topographically all of the surveyed hospitals are located in flat areas where as only half (52%) of health centers were located in flat areas. The vast majority of health posts (52.2%) are in flat areas and the least health posts (0.1%) in creek areas. **Fig 1** below shows the type of topography health posts located.

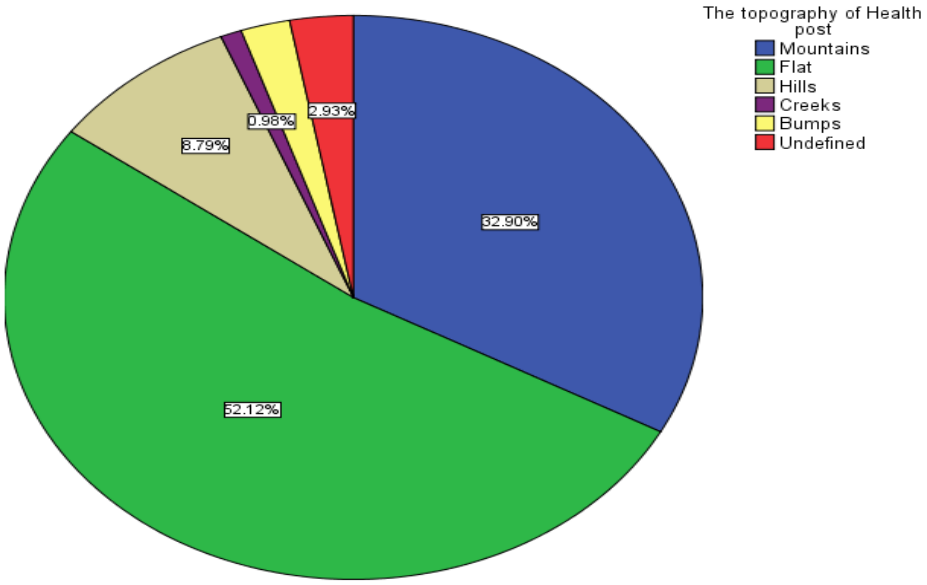

Figure 2 Different topography of health posts in four populous regions in Ethiopia, 2013

4.2.1. Availability of Electricity

All hospitals, only 54.50% of the health centers and 11.3% health posts had a regular supply of electricity during the times when client services were provided. Continuous supply of electricity was least reported by health centers in all regions for example in Amhara region, Benja Woreda , Guanga Shekudad Woreda and Saynt Woreda 25%, 25%, and 28.6% respectively and in

Oromiya Rregion Taltalie Woreda (20%), Saba Bor Woreda (25%), and Dhas Woreda (25%), in SNNPR Loka Abaya Woreda (33.3%) and in Tigray Region Tsegede Woreda (40%) health facilities reported least supply of electricity. All the hospitals and the majority of health centers were found to have a back-up generator ensuring reliable source of lightning for client care during the night and consistent source of fuel for operating medical equipment.

4.2.2. Regular Water Supply and Toilet Facility

Out of the total surveyed health facilities 81 (65.9%) of health centers, 136 (44%) of health posts and 3 Hospitals had regular water supply**.** The most commonly used source of water by the majority of the health facilities was piped water. Health posts (26.6%) were least likely to have piped water as compared to other types of health facilities. Amongst the regions, smaller proportion (46.2%) of health facilities in the Oromiya region had piped water. Health centers with toilet facility accounted 115(93.5%). Table 4 and 5 Provides summary information on these infrastructure components by facility type, and region.

Table 4 Infrastructure in labor & delivery and the maternity ward within the facility, 2013

Variables	Hospital (N=4)	Health Center (N=123)	Health Post (N=307)
Sufficient light source to perform tasks during day	3(75.0%)	111(90.2%)	234(76.2%)
Sufficient light source to perform tasks at night	3(75.0%)	48(39.0%)	24(7.8%)
Means of ventilation	4(100.0%)	105(85.4%)	246(80. 1%)
Waiting area for visitors and family	2(50%)	85(69.1%)	95(30.9%)

i) Availability of Emergency Communication and Transport

Communication and transport are two elements at the core of a referral system and when used effectively and expediently can save women's and their babies' lives during pregnancy, childbirth and the postpartum period. Communication can serve to request transportation, to inform the receiving facility that a patient is where and in what condition. Telephones or mobile phone can also be used to obtain medical advice and to provide counter-referral measures. Seventy five percent of facilities reported at least one functioning mode of communication on site. While almost all hospitals and (100%) had a functioning mode of communication on site, and 92.7% of health centers had such access. Seventy five percent of hospitals had access to a land line in the maternity. Out of the four hospitals, 3(75%) of hospitals and 85.4% health centers reported a functioning mode of transport for referral purposes (determined by a

functioning ambulance or other type of motor vehicle). Overall, 75% of the hospitals reported either a functioning ambulance (50%) or another functioning motor vehicle (50%). Health centers reported to have motor vehicle of any sort where (33.3%) and 14.5% reported some other functioning motor vehicle. On the other hand About (51.69%) from 118 Health centers reported that, health posts under them have access of district ambulance to transfer patients to health center. Virtually 59% health posts have means of transport facility for referral cases other than walking on foot but families were responsible to make such arrangements on their own. *The qualitative findings supported that difficulty in obtaining transportation as a commonly mentioned barrier to use of MNCH services, particularly in communities that were remote, scattered, and mobile or located near a river that regularly flooded. Information provided on the availability of ambulances provides a mixed picture, with some contradictory statements within the same Woreda. In OdoShakiso, for example, the FGD with HDA members stated that "HEWs call an ambulance when a woman goes into labour or suffers an emergency". During the FGD with mothers', respondents said "there was no ambulance available to them". It is possible that the FGD with mothers was conducted in a more remote kebele than that with HDA members or that those participants were simply unaware of the ambulance service, but the discrepancy may suggest that information about available transport may not be widely disseminated, or that even within the same woreda, ambulance coverage is inconsistent. (***For further information refer annex II Section 1.4****)*

*Additionally, from the qualitative result obtained that 15(60%) woredas use cars and 3(12%) use ambulance and 9(36%) woredas use motor bicycle for monitoring and supervision of Health facilities under them (**key Informant Interview of Woreda Health Office Head**).*

Table 5 Availability of Basic Infrastructure within Surveyed Facilities by facility type, and region August, 2013

Type of facility	*Toilet facility*	*Regular Water supply*	*Regular electricity or generator*	*Transportation access*	*Total HF surveyed*
Hospital	4(100%)	3(75%)	4(100%)	4(100%)	4
Health Center	115(93.5%)	81(65.8%)	67(54.4%)	115(93.5%)	123
Health post	238(77.5%)	136(44.3%)	36(11.7%)	105(34.2%)	307
Health Posts by Region					**Health posts**

Amhara	71(76.3%)	43(40%)	11(11.8%)	57(61.3%)	93
SNNPR	89(83.2%)	59(55.1%)	9(8.4%)	73(68.2%)	107
Oromiya	57(66.3)	17(19.8%)	10(11.6%)	40 (46.5%)	86
Tigray	19(90.5%)	20(95.2%)	6(25.6%)	11(52.4%)	21

Availability of designated rooms for maternity care

The majority (94%) of surveyed health centers did not have separate physical newborn room, but all of the hospitals have separate newborn room. Totally there were 150 delivery couches/beds are available for pregnant women in first stage room (waiting room) and 188 delivery couches/beds are available for pregnant women in labor in 2nd stage rooms (delivery room) at the surveyed health centers. On average 2 delivery couches/beds available to carry out delivery services at each health center and 6 delivery couches/beds available to carry out delivery services at each hospital. Ethiopian HSDP III achievement report had shown that there is about 1.9 beds per 10,000 populations, which compares to 9 beds per 10,000 population average for Sub-Saharan Africa and 27 beds per 10,000 populations globally. In this survey it was found to be 1 bed per 137,256 populations for hospital and 1 bed per 13,391 populations for health center, which is very low as compared to national, sub-Saharan and global numbers of beds per population. It would have some change if it is calculated using catchment population.

4.3. *Availability of Maternal and Newborn Health Services and Resources*

Maternal health is not only a women's issue; a mother's health has a direct bearing on the health of her newborn as well. The majority of pregnancies are normal, but about 15 percent of all pregnant women experience life-threatening pregnancy-related complications. Many complications and subsequent poor outcomes for women and newborns can be prevented or managed by providing quality care including early detection of problems and appropriate and timely interventions. With the accumulation of evidence on best practices related to preventing maternal morbidity and mortality, some conventional (and traditional) maternal health practices and interventions have been re-examined in the last 12 months. Subsequently, there have been changes in programs, policies, and strategies.

4.3.1. Antenatal Care (ANC)

As noted, all pregnant women are at risk of developing complications. The aim of ANC is to achieve a good outcome for both the mother and baby and to prevent any complications that may occur in pregnancy, delivery, or the postpartum period. It is therefore important to ensure that all pregnant women have access to preventive interventions, early diagnosis and treatment, and emergency care when needed. It is now emphasized that ANC should include individual birth plans, education on danger signs, complication readiness, family planning counseling, prevention of mother-to-child transmission (PMTCT) of HIV, nutrition, and skilled and timely interventions to avoid adverse maternal and neonatal outcomes. This forms the basis of focused Antenatal Care (FANC), in which a minimum of four quality visits are recommended.

During our survey all hospitals, all health centers and 279(90.3%) of health posts accept pregnant women and their newborns for care during work hours and working days (8 hours a day, 5 days a week). All the four surveyed hospitals, 112(91.1%) health centers, and 160(51.8%) health posts accept pregnant women and their newborns for care during non-work hours (nights and weekend, 24 hours a day). About 40,000 of pregnant mothers who gave birth in the last 12 months preceding the survey received antenatal care from a skilled provider at the surveyed health facility making the overall ANC coverage of 29% which varies by region the highest recorded in Tigray region (52.39%) and the least is recorded in SNNPR 20.3%. Only 6% of pregnant women in the last 12 months before the survey made four or more ANC visits during the length of their pregnancy at the surveyed health facilities. This result is much lower than the national coverage reported in 2005 EFY where antenatal care (ANC) coverage (at least one visit) was found to be to 97.4 % **[33].** The possible explanation for this huge difference could be due to the fact that this survey is limited to only 25 low performing Woredas because of the shortage of skilled man power is usually most severe in rural areas, reflecting a geographic imbalance in the health workforce and the analysis doesn't include health posts. *The qualitative findings supported that routine visits to health facilities for ANC or PNC require walking long distances or paying for alternative means of transport, such as by motorbike, which was quoted as costing roughly 300-500 birr depending on distance. These were seen as expensive options that discouraged frequent visits to health centre, further strengthening women's preference for delivery in health facilities.*

***(*For further information refer annex II Section 1.4)**

We have also assessed whether facilities have the capacity to test ANC and PNC clients' blood for anemia, urine for protein and glucose; to determine blood group; and to diagnose and treat syphilis. All the four hospitals have services to test ANC and PNC clients' blood for anemia, urine for protein and glucose; to determine blood group; and to diagnose and treat syphilis. Around twenty seven percent of health centers have syphilis testing facilities, 39.8% of health centers have hemoglobin level testing, 45.4 % of health centers have blood group testing and 51.2 % of health centers have urine analysis testing facilities. Out of the total women tested for syphilis, syphilis positive rate was found to be 2.84%(regional variation was found to be from the highest (4.0%) in Amahara, 2.9% in SNNPR, and 1.6% in Tigray to 0.7% in Oromiya).

4.3.2. Maternal Immunization against Tetanus

All women giving birth and their new-born babies should be protected against tetanus. The purposes of giving the vaccine to women of childbearing age and to pregnant women are to protect them from tetanus and to protect their new born infants against neonatal tetanus (NT). Tetanus vaccination produces protective antibody levels in more than 80% of recipient's after two doses. Two doses protect for 1–3 years, although some studies indicate even longer protection. Tetanus vaccine is safe to give during pregnancy. Because tetanus spores are ubiquitous in the environment, eradication is not biologically feasible. High immunization overage of pregnant women, clean delivery and the identification and implementation of corrective action in high-risk areas are the three primary strategies for eliminating MNT. Antenatal services provide a convenient opportunity for vaccinating pregnant women. Where ANC coverage is inadequate, mass immunization of women of childbearing age could be an alternative though more costly option. Out of the expected women in the reproductive age of the catchment population, only 8% of received TT1 and 3.92% received TT3+). Out of the expected pregnant women, 19% received TT1 and 5.42% received TT3+. There is regional variation in both pregnant and non-pregnant women to receive TT immunization (**See Fig below**).

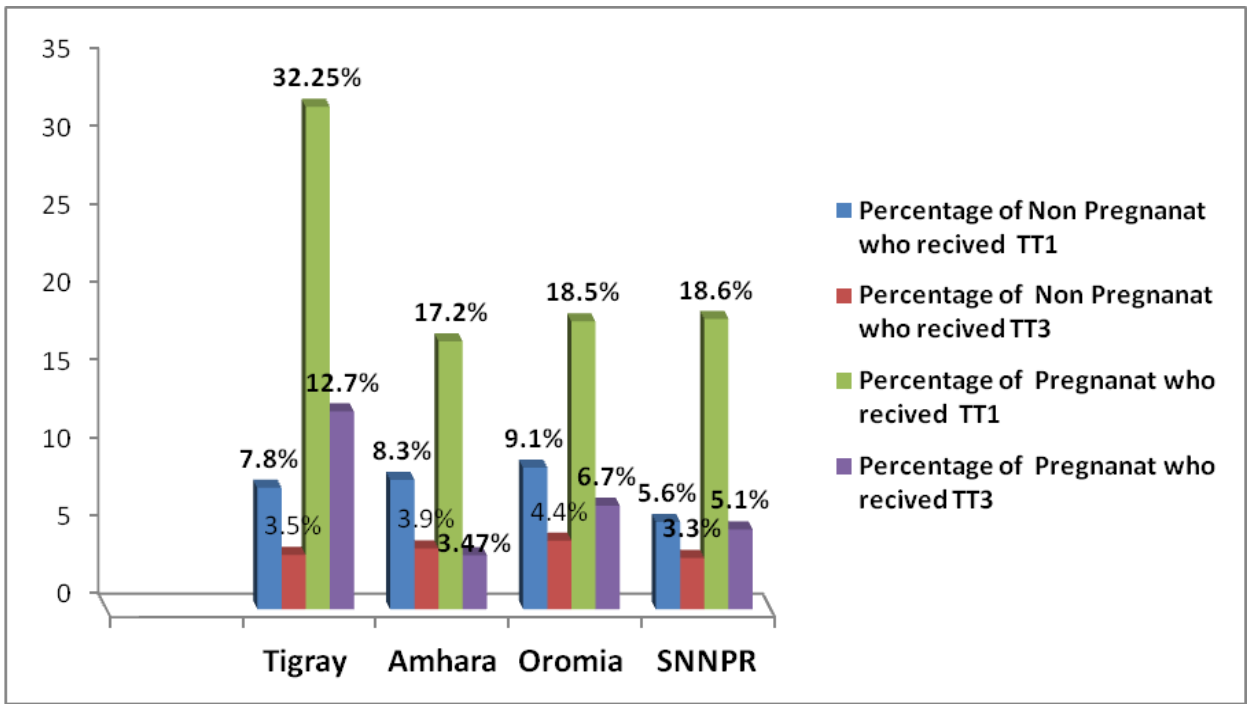

Figure 3 Percentage of TT immunization among pregnant and non-pregnant women by region

4.3.3. Delivery Care

We have assessed delivery services provided by the health facilities in the last 12 months prior to the survey. All hospitals ,all health centers and 277(90.2%) of health posts reported that they are open to provide delivery services 24 hour a day and 7 days a week. The lowest health facility delivery service recorded at Dillo 1.9% and highest is recorded in Kaftahumera (58.9%). while the percentage of deliveries attended by skilled personnel at national level is 23.1% in EFY 2005**(30)**. This survey has lower percent (16%) of deliveries attended by skilled health personnel than the national report because they are low performing woredas and it doesn't consider clean and safe deliveries, private clinics deliveries and etc except health center and hospital deliveries. In terms of community members' motivation to use delivery services, there was general agreement that willingness to deliver in facilities was steadily increasing. While this was seen to be a positive development, there were also some concerns that a rapid rise in health-seeking at MNCH facilities could potentially overstretch existing capacity and compromise quality:

"Yes, the pregnant women do have good health seeking behavior. Their seeking behavior is alarmingly increasing over time, e.g. the number of institutional deliveries is increasing rapidly when we compare with the previous year. Even it is so difficult to cover the health center

delivery by two midwives" (Woreda health office head, Tigray) ***(For further information refer Annex II Section 1.3)***

Several respondents mentioned that there were some forms of punishment for women who did not choose to deliver in facilities, although no details were given. Although punishments came up in only 2-3 interviews, these came from different types of respondents in different woredas, suggesting that there may be some providers or health administrators who are becoming over-zealous in their attempts to change health-seeking behavior:

"All mothers go to deliver at health institutions. There is punishment if they don't". (Religious leader, FegetaLekuma)

"If a woman delivers at home, there is punishment by the community members assigned for this purpose" (Woreda health office head, Tigray) (**For further information see Annex II Section 1.3**)

Stillbirth rate was found to be 24.8 per 1000 live births and facility level maternal deaths was 1.6 per 1000 expected deliveries in the last 12 months prior to the survey. Only seven (5.7%) of health centres administered misoprostol for mothers after delivery and 111 (90.2%) facilities use clean and safe delivery kit in attending every delivery during the last 12 months prior to the survey.

Table 6 Maternal health indicators in health centers, August 2004 to July 2005(E.C)

	Zone	Districts (Woreda)	Population in 2005E.C	Estimated pregnancy	Facility Delivery Rate (%)	Facility level Maternal death(No)	Still birth (Number)
Amhara Region	**Awi**	Banja	174142	6966	239**(3.4%)**	3	7
		Fagetalekuma	139806	5592	708**(12.6%)**	1	13
		Guanga	246761	7403	513**(6.9%)**	0	5
		Guangashlkuda	123870	3716	789**(21.2%)**	0	21
	South Wollo	Wogedie	149556	4487	956**(21.2%)**	1	26
		Saynte	160363	4811	553**(11.5%)**	5	7
		Legambo	182522	5476	1858**(33.9%)***	6	71
SNNP Region	**Sidama**	Bensa	298049	11922	585**(4.9%)**	0	18
		Bona Zuria	152499	6700	1131**(16.8)***	4	59
		Dara	187405	7496	548**(7.3%)**	0	5
		Borricha	280564	11222	2270**(20.2%)**	0	12

		Loka Abaya	117781	4711	456**(9.7%)**	0	9
	Silte	Alicho Worero	109771	4391	1414**(32.2%)**	0	18
		West Azernet	71042	2842	994**(34.9%)**	0	5
Oromia Region	**Borena**	Arero	39221	1569	122**(7.8%)**	0	4
		Dhas	29139	1167	298**(25.5%)**	0	0
		Dillo	27091	1084	21**(1.9%)**	0	3
		Teltelie	74413	2977	109**(3.6%)**	0	2
	Guji	Adola Rede	133449	5338	1131**(21.2%)***	0	68
		Girja	58980	2359	101**(4.3%)**	2	9
		Odo Shakiso	137838	5514	419**(7.6%)**	1	3
		Seba Boru	112983	4519	608**(13.5)**	0	5
		Wadera	59400	2376	150**(6.3%)**	1	5
Tigray Region	**Western Tigray**	Kafta Humera	106859	3633	2142**(58.9%)**	1	21
		Tsegedi	120626	4101	1040**(35.1%)***	2	29

* Indicates analysis is done in considerations of available hospitals in the woreda

Cesarean section as a proportion of all births

In Ethiopia FY 2005 (July 2012 – June 2013), from the four surveyed hospitals (2.9%) of all expected births were by cesarean. Recall that 5% is the minimum recommended level for maternal and fetal indications and 15% is the maximum. This figure varies significantly by region, with the highest recorded in Amhara (13.3 %%), followed by Oromiya (11.5%), and the lowest recorded in SNNPR (2.9 %) (**Figure 4 below**)

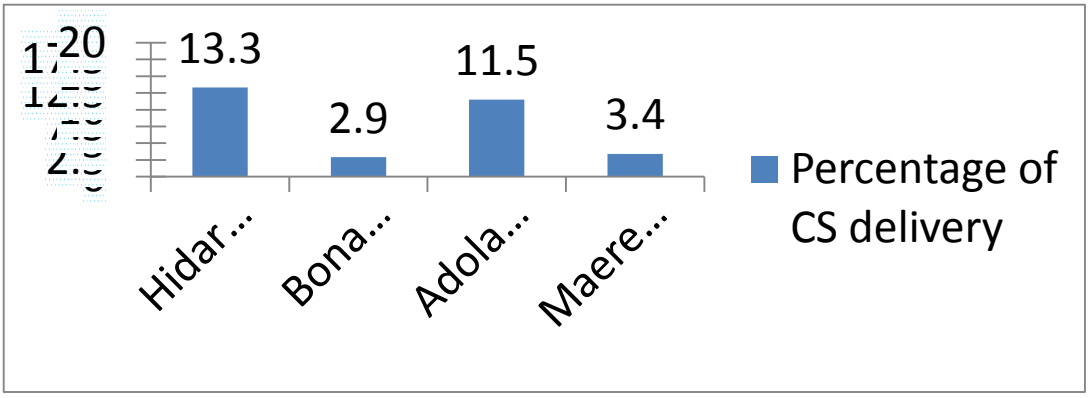

Figure 4 Percentage of Cesarean Section in four hospitals, 2013

Length of stay for women after a normal delivery

Literatures show that, the duration of stay after a normal delivery "appears to be determined more by fashion and the availability of beds than by any systematic assessment of the needs of recently delivered women and their new babies. In this survey, hospitals and health centers were asked to report the length of stay for a woman after normal delivery. It shows that in both hospitals and health centers, staff reported that the median length of stay after delivery was reported to be six hours.

4.3.4. Availability Of Immediate and Essential Newborn Care

Majority of health facilities always provide immediate and essential newborn care services as needed. During the survey, facilities were assessed for whether the newborn care services are always available, at day time only or not available. All hospitals provide immediate and essential newborn care except Adola Hospital and Maereg Hospitals lack services for advanced resuscitation support and pediatric nursery services. At health center level, 83.7% of health centers have basic neonatal resuscitation services, 89.4 % have warmth and drying of baby services, 91.9% have eye prophylaxis, 92.7% have clean cord care, 6.5% have incubator for newborn care, 6.5% have advanced neonatal support services, 6.5% have pediatric nursery services and 97.8 % have early and exclusive breast feeding counseling services.

Table 7 Availability of basic and immediate newborn care facilities in Health center N=123, 2013

Basic and immediate newborn care	Availability of Newborn care services			
	Always	Day time only	Others	Not available
Basic newborn resuscitation	103 (83.7%)	2(1.6%)	1(0.8%)	17(13.8%)
Warmth (drying and skin-to-skin contact)	110(89.4%)	2(1.6%)	2(1.6%)	9(7.3%)
Eye prophylaxis (tetracycline eye ointment)	113(91.9%)	2(1.6%)	1(0.8)	7(5.7%)
Clean cord care	114(92.7%)	0	0	9(7.3%)
Incubator	8(6.5%)	0	3(6.5%)	112(91.1%)
Advanced resuscitation support	8(6.5%)	0	1(0.8%)	114(92.7%)
Pediatric Nursery	8(6.5%)	0	1(0.8%)	114(92.7%)
Early and exclusive breast feeding counseling	120(97.6%)	1(0.8%)	0	2(1.6%)

The average number of newborns who have got newborn care within two days of birth was found to be 61 at each health center in the last 12 months and of whom 12 have had asphyxia and received neonatal resuscitation service in the last 12 months. Four Neonatal death was recorded at each health center in the last 12 months. Averagely 8 newborns age 0-28 days with suspected sepsis were seen at each health center in the last 12 months prior to the survey and all of them received antibiotic treatment at in the last 12 months.

4.4. *Availability Of EmONC and Performance of The Signal Functions*

EmONC refers to a set of life-saving interventions or signal functions used to treat direct obstetric complications that make up approximately 70-80% of maternal deaths globally. A facility qualifies as functionally basic EmONC if seven signal functions have been performed in the 3 months prior to the assessment. A facility qualifies as functionally comprehensive EmONC if cesarean delivery and blood transfusion services are provided in addition to the seven basic signal functions (see table 8 below). According to UN recommendations, there should be at least one comprehensive and four basic EmONC facilities per 500,000 populations. In our survey, all the four hospitals have reported that they have CEmONC services and all of them found to be EmONC facility. Out of the 123 health centers, 117(95.1%) were classified as EmONC facilities, 88(71.5%) of these health centers reported that they have provided BEmONC services in the last 12 months. Regarding giving the service, Providing of parentral antibiotics was the highest function performed health centers in Amhara, Oromia and Tigray and the least was recorded for Administer parentral Magnesium Sulfate among all regions. Concerning the basic emergency obstetric and neonatal care (BEmONC) services in Ethiopia, percentage of Health Centers (HC) providing BEmONC services were 55.9% and percentage of hospitals providing Comprehensive emergency obstetric and neonatal care (CEmONC) were 78.9% in EFY 2005 **[33].** This survey has good performance report as compared to the 2005 report. None of the health centers in SNNPR, Oromiya and Tigray regions were fully functioning. Practically, all hospitals and all health centers should have the capacity to provide comprehensive and BEmONC services respectively. The variation observed in this survey could be due to shortage of trained human resource and logistics evidenced by the most common reasons mentioned in its order: lack of supplies/drugs/equipment, 'training issues' or the lack of human resources and no patient indication in general. The facilities' reported performance of the signal functions is shown in table 8 and 9.

Table 8 Proportion of health centers performed the signal factions in the last 12 months by region N=23

	Regions			
	1-Amhara	**2-SNNP**	**3-Oromiy**	**4-Tigray**
Signal Functions	Number (%)	Number (%)	Number (%)	Number (%)
Provide parentral antibiotics	**35(89.7%)**	**29(70.7%)**	**21(72.4%)**	**14(100.0%)**
Provide parentral Oxytocine	**33(84.6%)**	**29(70.7%)**	**18(62.1%)**	**13(92.9%)**
Administer parentral Sulfate	**8(20.5%)**	**1(2.4%)**	**7(24.1%)**	**0(.0%)**
Manual Removal of Placenta	**32(82.1%)**	**34(82.9%)**	**17(58.6%)**	**12(85.7%)**
Removal of Retained Placenta	**32(82.1%)**	**30(73.2%)**	**19(65.5%)**	**11(78.6%)**
Perform assisted Vaginal Delivery	**17(43.6%)**	**13(31.7%)**	**7(24.1%)**	**6(42.9%)**
Perform New Recitation	**33(84.6%)**	**30(73.2%)**	**20(69.0%)**	**11(78.6%)**

Table 9 Reported Provision of the CEmONC and BEmONC Signal Functions in Previous Three Months and 12 months in four regions of CIFF project areas, 2013

Comprehensive and Basic Emergency Obstetric and Newborn Care Signal Functions in Health facilities.	**Hospitals performing Signal Functions(N=4) within 12 months**	**Health center performing Signal Functions (N=123) within 12 months**
Administered Parenteral antibiotics	**4(100%)**	**88(71.5%)**
Administer Parenteral oxytocin	**4(100%)**	**99(80.5%)**
Administer parenteral Magnesium sulfate	**4(100%)**	**16(13.0%)**
Perform manual removal of placenta	**4(100%)**	**95(77.2%)**
Perform removal of retained product	**4(100%)**	**92(74.8%)**
Perform assisted vaginal delivery (e.g. vacuum extraction, forceps delivery)	**4(100%)**	**43(35.0%)**
Perform newborn resuscitation	**4(100%)**	**94(76.4%)**
Performed cesarean delivery	**4(100%)**	**NA**
Give blood transfusion	**4(100%)**	**NA**

Reasons for Not Performing the Signal Functions

In health facilities that did not perform a signal function in the past 3 months the staff was asked if the signal function was performed in the 12 months prior to the survey. A fairly no large gap existed between the 3 month performance and the 12 month performance for the signal functions. If staff reported that the signal function was not performed in the last 3 months, they

were asked why it was not performed. Staff was allowed to report more than one reason for non-performance. The most common reasons mentioned were in this order: lack of supplies/drugs/equipment (58.54%), 'training issues' or the lack of human resources (17.89%) and no patient indication (13.01%) in general (**See fig 2 below**).

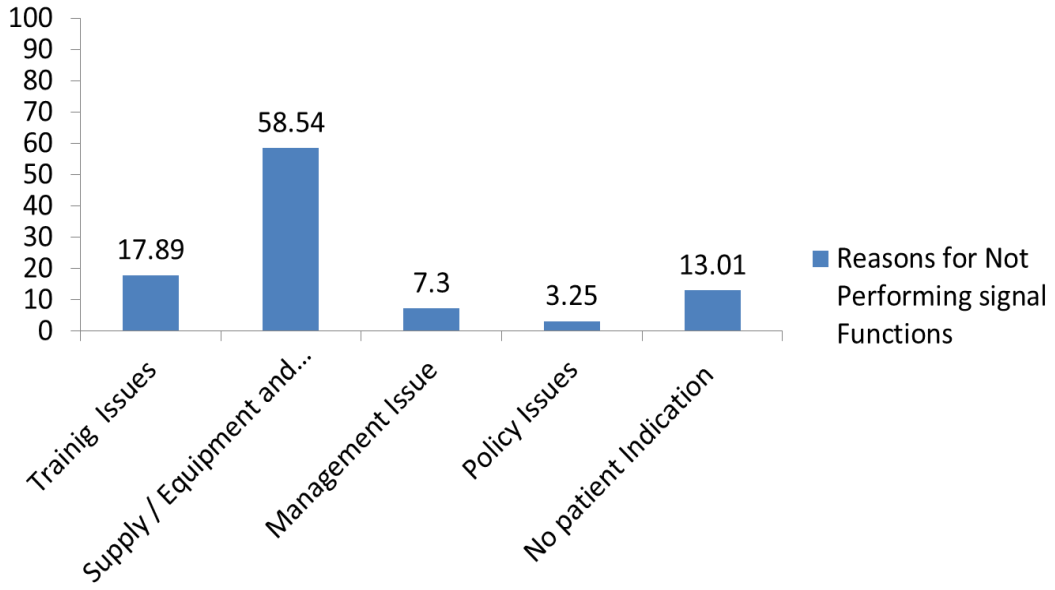

Figure 5 Reasons for not performing signal functions of BEmONC by health center, 2013

Lack of supplies, equipment and drug was the most reason mentioned by health facilities in all the four regions of the survey areas. It is difficult to calculate percentages because of the difficulties to calculate absolute value since one reason may appear more than one time for the seven signal functions.

Table 10 Reason for not perform 1 Reason for not performing signal functions of BEmONC in Health center by Region, 2013

Reasons for not performing signal functions	Amhara	Oromiya	SNNPR	Tigray
Training issues	17	16	14	3
Supplies/equipment/drugs issue	51	35	51	16
Management issues	3	2	0	5
Policy issues	0	4	1	2
no indication	33	32	55	6

Met need for EmONC Facilities

In EFY 2005, there were 80,492 eligible pregnancies from 123 health centers among 25 woreda. Among these, approximately 15% would be expected (14,090 pregnant women) to develop major direct obstetric complications that require medical attention. For the indicator of met need the proportion of women who had developed major direct obstetric complication were only 862 (less than 1% (0.92%)) of the pregnancies expected to develop obstetric complications, 0.54 % (507) received treatment in EmONC facilities. Met need in all 123 health centers not varied significantly among the four regions, slightly the highest met need was recorded in Oromiya (99.6%) and the lowest was recorded in Tigray (97.5%) (**Figure 6**).

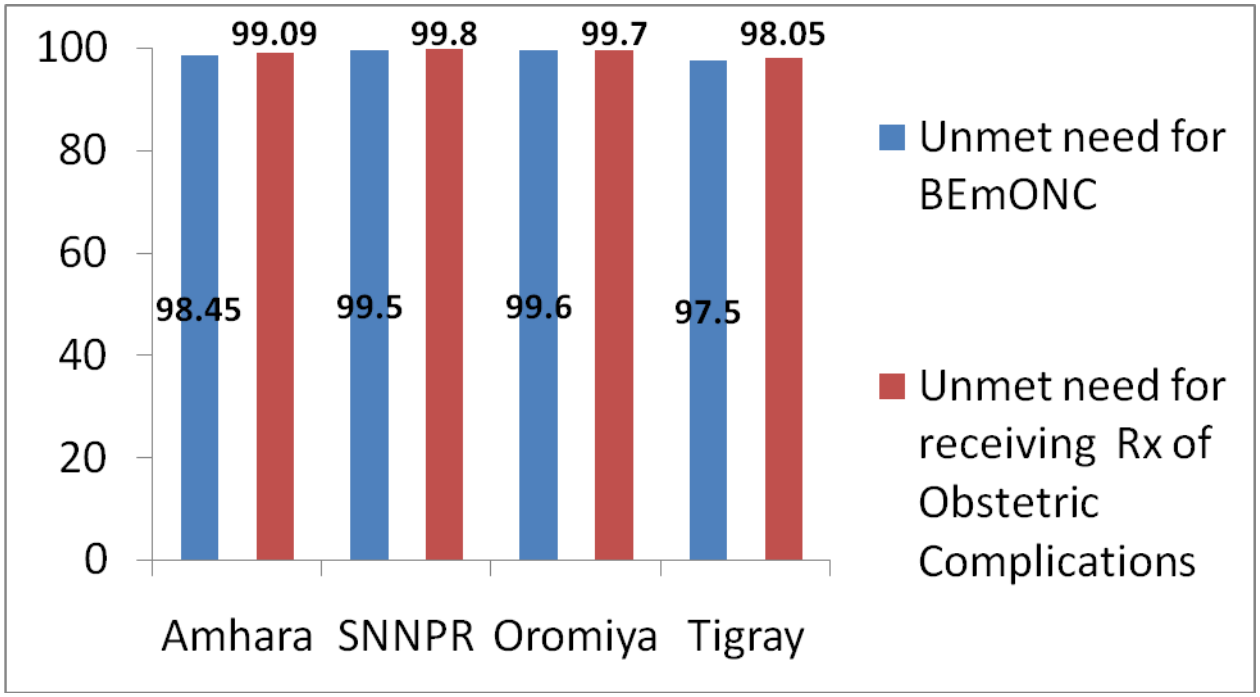

Figure 6 Unmet needs for BEmONC and treatment seeking for obstetric complications by region

4.4.1. Postnatal Care

A large proportion of maternal and neonatal deaths occur during the 48 hours after delivery, and these first two days following delivery are critical for monitoring complications arising from the delivery. Thus, postnatal care is important for both the mother and the child not only to treat complications arising from the delivery, but also to provide the mother with important information on how to care for herself and her child. Safe motherhood programmers have

recently increased emphasis on the importance of postnatal care, recommending that all women receive a health checkup within two days of delivery. To assess the extent of postnatal care utilization, we have asked facilities whether they provide services for health checkup after the delivery, in the last 12 months preceding the survey. Only one woman got postnatal care within two days of birth at each health center in the last 12 months but the number of women died during postpartum period was found to be 0.03 (+0.2) at each facility in the last 12 months. The percentage of postnatal coverage in this survey is extremely lower than the national postnatal care (PNC) coverage which was 50.5% **[33].** The variation could be due to the differences in the survey area where the performance rate was perceived low as compared to others and the geographical situation to access health facilities could also be other factor.

4.4.2. Prevention of Mother to Child Transmission (PMTCT)

A facility is defined as offering PMTCT services if any activities related to prevention of transmission in the pregnant or recently delivered woman are offered. Services for PMTCT are most often offered in conjunction with antenatal and delivery services and may include a variety of activities such as: pre and post-HIV test counseling, and testing pregnant women for HIV; providing HIV positive women with counseling on infant feeding practices; family planning counseling and/or referral; and provision of ART to HIV positive woman during delivery and to newborns within 72 hours of birth. Among the surveyed facilities, 118 (95.9%) were offering PMTCT services. On average 575 women (48 women per month) received PMTCT services at each health center in the last 12 months and 16 of them found HIV positive and 6 of them were pregnant women. The percentage of HIV-positive pregnant women who received efficacious ARV therapy or prophylaxis to prevent Maternal to Child Transmission (MTCT) of HIV has been estimated at 42.9% in EFY 2005 **[33].** According to the 2013 UNAIDS Report, Ethiopia is one of the few "rapid decline" sub-Saharan African countries, with a reduction by 50% of new HIV infections among children between 2009 and 2012. Among the four prongs to PMCT, treatment and care is appropriate to such a positive women. Provision of ART to HIV/AIDS clients require trained health personnel and regular monitoring of their condition, in order to ensure that an effective antiretroviral regime is being implemented and for properly managing side effects. Other issues that important for providing quality ART services include: availability of protocols and guidelines for relevant care and support services, consistent supply of ARV

drugs and record systems so that ARV compliance can be monitored. **Table 9** shows the availability of ARV drugs in the surveyed facilities

Table 11 Percentage of health facilities with antiretroviral with no stock-out over the past 12 months by type of facility

Antiretroviral Drugs	***Hospital(N=4)***	***Health Center(N=123)***
Nevirapine (NVP)	4(100%)	**1(0.8%)**
Efavirenz (EFZ)	4(100%)	**33(26.8%)**
Zidovudine (AZT)	4(100%)	**43(35.0%)**
Stavudine (d4T)	3(75%)	**25(20.3%)**
Lamivudine (3TC)	4(100%)	**39(31.7%)**
Abacavir (ABC)	4(100%)	**10(8.1%)**
Lopinavir(LPV)	2(50%)	**5(4.1%)**
Tenofovir (TDF)	3(75%)	**31(25.2%)**
Nevirapine – newborn	**3(75%)**	**41(33.3%)**

4.5. *Human Resources for Health (HRH)*

Human resource shortages in the health services are widely acknowledged as a threat to the attainment of the health-related Millennium Development Goals (MDGs). Attempts to optimize the potential of the existing health workforce are therefore crucial. A more rational distribution of tasks and responsibilities among cadres of health workers is seen as a promising strategy for improving access and cost-effectiveness within health systems. For example, access to care may be improved by training and enabling 'mid-level' health workers to perform specific interventions that might otherwise be provided only by cadres with longer (and sometimes more specialized) training. Such task shifting strategies might be particularly attractive to countries that lack the means to improve access to care within short periods of time. In dealing with maternal and newborn health care services, particularly labor and delivery and obstetric emergencies often occur at inconvenient hours of the day and night, requiring facilities to be open 24/7 with staff who can attend patients quickly. In the surveyed facilities, nurses by far make up the backbone of providers delivering services, with more than 400 working in the surveyed health centers. No general practitioners or specialist doctors were found working in health centers. On average there were about 1 health officers, 1 midwife, 4 nurses and 2 others

for every health center making the total number of staff per health center into 9. One way of facilitating improvement in the quality of maternal and newborn health care is to give available health cadres short periods of additional training and then to allow them to take on particular activities they have not undertaken before. In this survey it has been described that, 49 (40%) health centers had none of staff trained in BEmONC, 50 (40.7 %) health centers had no staff trained in PMTCT, 67(54.5%) health centers had no staff trained in CFP, 98(79.7%) health centers had no staff trained in NCT, and 36(29.3%) health centers had no staff trained in IMNCI. The extent of training of nurses, health officers and midwives on MNCH services in the surveyed districts indicated that the total number of staff trained in BeMONC (117), PMTCT (143),CFP (126), NCT (25), and IMNCI (176) in health centers accordingly. At health post level 128 (41.4%) of health posts reported that none of the HEWs trained in clean and safe delivery, 58(18.8%) health posts reported not trained in integrated community case management and 22.7% of health posts reported not trained in implanon insertion and 43.4% health posts reported they have not received Integrated Refresher Training (IRT). There is no Woreda level and regional level differences with respect to training needs at health post level except in Tigray region HEWs trained in clean and safe delivery was found to be very low (9.5%) specific to Kefta Humera Woreda none of the HEWs trained in clean and safe delivery. The Wold Health Organization recommends that countries should have an average of 2.28 health-care professionals per 1,000 populations to achieve adequate coverage of skilled health personnel at delivery **[31].** In this regard the surveyed health centers were below the threshold. In the qualitative findings it has also been explored that, skills and training were dominant themes and appeared to preoccupy providers and administrators at all levels. In some interviews, requests for further training appeared opportunistic, with respondents taking advantage of the interview to make requests for future assistance. But there were also numerous examples of where skills were lacking and thus negatively affecting the ability of health staff to provide services at an adequate level of quality:

Training was given by selecting health posts. But our health post did not get the chance and we were not trained on delivery. We are working using the knowledge we gained from college and we are working with referral linkage. (HEW, FegetaLekuma) **(For further information refer annex II Section 1.2)**

Skills are often lost when trained staff members move on, and are either not replaced or replaced by more junior and less qualified individuals:

"At woreda level there is not training problem, but there is a problem related to training at health center and health post levels. The problem is related to staff turnover. Trained staff may leave to other areas and again we recruit fresh professionals". (Woreda health officer, SNNPR)(**For more information refer Annex II Section 1.2)**

Health center heads also complained that if only one or two individuals received specific training, they did not always transfer those skills to other colleagues. Finally, one HEW and one woreda health officer mentioned that their skills were not used to full capacity because they were being diverted to other activities, such as agricultural extension activities.

"Health extension workers must be focused only on health activities, because here we are working on other activities, so it is better to work only on maternal and newborn health" (HEW, Loka Abaya) ***(For further information Refer Annex II section 1.2)***

"For example, I am assigned to work also on agricultural activity, so it is difficult ... we are overburdened with different work" (Woreda health office head, SNNPR) ***(For further information refer to annex II section 1.2).***

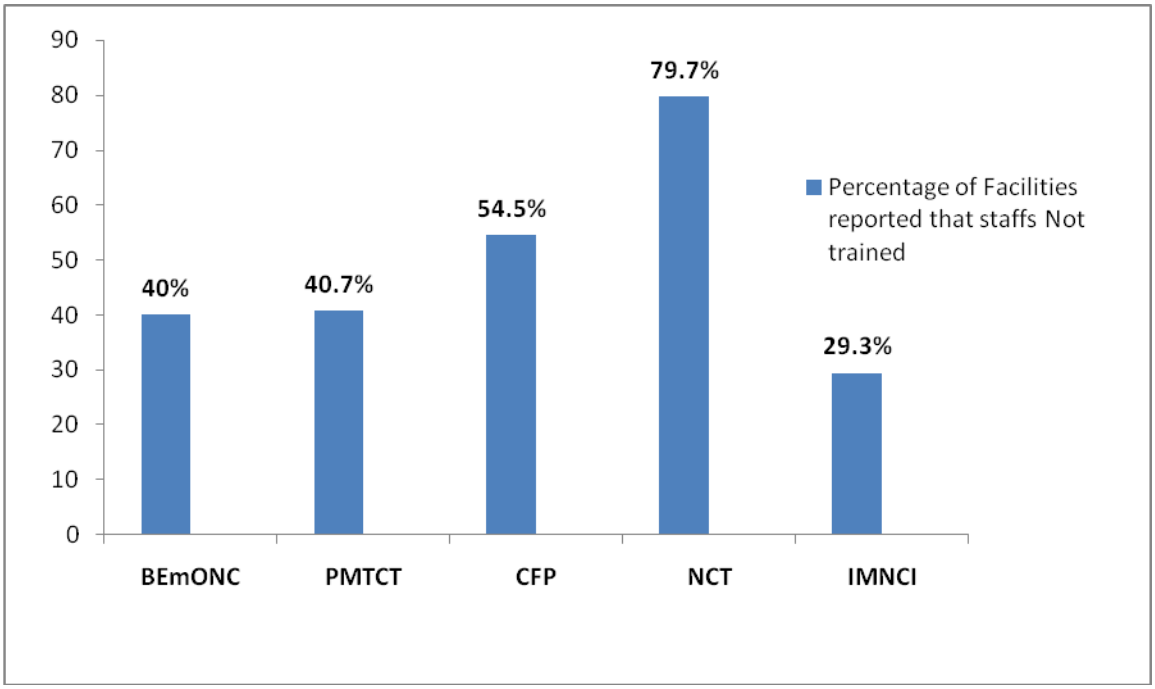

Figure 7 Percentage of health centers with the need for staff training in selected MNCH issues

Table 11 Number of health centers with at least one staff trained in MNCH related issues over the last 12 months per Woreda

Woreda Name	Trained in BEmONC	Trained in PMTCT	Trained CFP	Trained NCT	Trained IMNCI	Total Health Centers Surveyed
Adola Rede	1	1	1	0	3	4
Alicho Worero	4	4	4	3	4	5
Arero	2	2	1	0	2	3
Banja	3	3	3	2	2	4
Bensa	3	5	1	0	5	8
Bona Zuriya	4	2	2	0	4	4
Borricha	1	5	2	3	7	8
Dara	2	5	1	1	5	6
Dhas	1	2	1	0	2	4
Dillo	2	1	0	0	1	2
Fegeta Lekuma	6	3	4	3	6	6
Girja	0	0	0	0	1	2
Guanga	4	2	2	1	4	4
Guanga Shekuda	3	2	2	2	4	4
Kefta Humera	9	9	4	2	8	9
Legambo	5	4	7	2	4	9
Loka Abaya	1	3	2	0	6	6
Odo Shakiso	2	2	1	1	2	3
Saba Bor	2	3	2	0	0	4
Saynt	5	1	4	1	4	7
Taltale	3	3	3	0	2	5
Tsegedie	5	4	2	2	1	5
Wadera	0	1	1	0	1	2
West Azernet	3	2	2	1	4	4
Wogdie	3	4	4	1	5	5

At hospital level, total number of staff were found to be 179 in the assessed hospitals(Adola Hospital has 52 staff, Bona Hospital has 59 staff, Hidar 11 Hospital has 16 staff and Maereg hospital has 52 staff(see Table 11) .

Table 12 Hospitals by region with the Total number of staffs and different training received

Hospital Name	Region	Total Staff	No of specialists	GP	IESO	ESO	Trained CEmONC	Trained BEmONC	Trained NCT	Trained NICU
Adola Hospital	Oromiya	52	0	02	0	03	02	0	0	0
Maereg Hospital	Tigray	52	0	04	0	01	0	0	0	0
Bona Hospital	SNNPR	59	0	01	01	0	01	01	0	0
Hidar 11 Hospital	Amhara	16	0	04	0	01	0	02	0	0

4.6. *Availability of Essential Maternal and Newborn Health Supplies*

This part presents data from Logistics Management Information System (LMIS) of the facility assessment modules. The main aim of this part is to report on the availability of recommended drugs, equipment and supplies required for the optimal delivery of MNCH services**.**

Facilities were assessed for supplies and equipment using a standardized inventory tool. The outcome of a proper logistics supply is sustainable stock availability. Therefore, stockouts in the day of the visit were measured as well as the duration of stockouts during the last 12 months period, but not cross checked with the stock balance book. A stock-out can occur at one point in time or over a period of days, weeks or months. When there is a good stock management system in place, the stock-out duration will be minimal. Incidence of 'No stock out' refers to 'the situation in which a MNCH service delivery point in the facilities does not run out of any one or more supplies and equipment in previous 12 months and, therefore, had supplies and equipment on hand to serve clients at all times.

This survey focused on assessing availability/'no stock out' of modern contraceptive methods (oral pills, injectables, male condoms, female condoms, implants, IUCD, female sterilization and male sterilization), basic equipment, drugs and supplies in the service delivery points. There is no regional variation in stock out of most of the supplies and drugs among the surveyed facilities.

As a pre requisite for decreasing maternal mortality, all health facilities need to be equipped with three most important life-saving medicines (Oxytocin, Ergometrine and magnesium sulfate) with

adequate quantities all the time. The findings of this survey indicated that life-saving medicines oxytocine and ergometrine were available in the majority of the service delivery points that are assessed by the survey. Only one in ten (11.4%) of the health centers were equipped with three life-saving medicines (Oxytocin, Ergometrine and Magnesium sulfate) with adequate quantities all the time. The availability of these life-saving maternal health medicines also varies by region; none of health centers in Tigray region were equipped with all the three lifesaving medicines (Oxytocin, Ergometrine and magnesium sulfate) with adequate quantities all the time. Out of 123 health centers surveyed, 107(87%) reported that they have at least 1 of the three life-saving medicines (Oxytocin, Ergometrine and Magnesium sulfate); 78.9% had oxytocin, 68.3% had Ergometrine injection and 18.7% had magnesium sulfate. The proportion of facilities that reported the availability of Oxytocin varies from 51.7% in Oromiya to 80.5% in SNNPR, 92.3% in Amhara region and 92.9% in Tigray. Ergometrine was the second most available life-saving medicine the availability of which varies regionally. Its availability was highest in Amhara region where most health centers (87.2%) reported of having the drug at the time of the survey. On the other hand, only 48.3%% of health centers in Oromiya had Ergometrine available in stock at the time of the survey. The least available life-saving drug at the service delivery points was Magnesium Sulfate with significant regional variation. The proportion of health facilities which reported the availability of Magnesium Sulfate varies from 0% in Tigray, 15.4% Amhara, 20.7% Oromiya to 26.8% SNNPR. At national level treatment with magnesium sulfate (MgSo4) and pre-referral clinical care has been started at all Health Centers (30). The observed gaps may be due to poor supply of these medicines. About forty nine percent of health centers did not have a functioning mask to perform newborn ventilation, which is unacceptable in any facility where women give births. There was a serious lack of sterile gloves (0%) at health post, which are essential at all, health facilities.

When asked for 13 item delivery set equipment questions, only 4(3.3%) out of 123 (96.7%) health centers reported that facilities were equipped with full delivery set. Three of the health centers with full set of delivery equipment were from SNNPR (Borricha woreda (Shamana Health center), 2 from Dara woreda (Abera Doko,& Odola Health centers) the rest one health center is from Oromiya region (Dhas woreda(Dhas Health center). The following tables show the availability /stock out of drugs, equipment and supplies by Region and Woreda (**Table 9,13,14 and 15) and (Appendix A, B, C, and K)**.

Table 13 Availability of life saving medicine (Ergometrin, oxitocine and Magnisum Sulfate) by region, 2013

Life saving Medicines	Regions				Percentage (N=123)
	Amhara	SNNP	Oromia	Tigray	
Ergometrin	34(87.17%)	28(68.29%)	14(48.27%)	8(57.14%)	84(68.29%)
Oxitocine	36(92.30%)	33(80.48%)	15(51.72%)	13(92.85%)	97(78.86)
Magnesium sulfate	6(15.38%)	11(26.82%)	6(20.68%)	0(0%)	23(18.59)

Table 14 Number of Health centers with full delivery set with no stock-out over the past 12 months by Woreda

Region	Zone	Woreda	# of HC with full delivery set	Number of HC assessed	Name of health center with full delivery set
Amhara Region	**Awi**	Banja	0	4	
		Fagetalekuma	0	6	
		Guanga	0	4	
		Guangashlkuda	0	4	
	South Wollo	Wogedie	0	5	
		Saynte	0	7	
		Legambo	0	9	
SNNP Region	**Sidama**	Bensa	0	8	
		Bona Zuria	0	4	
		Dara	2	6	Abera Doko & Odola Health Center
		Borricha	1	8	Shamana Health center
		Loka Abaya	0	6	
	Silte	Alicho Worero	0	5	
		West Azernet	0	4	
Oromia Region	**Borena**	Arero	0	3	
		Dhas	1	4	Dhas Health Center
		Dillo	0	2	
		Teltelie	0	5	
	Guji	AdolaRede	0	4	
		Girja	0	2	
		OdoShakiso	0	3	
		SebaBoru	0	4	
		Wadera	0	2	
Tigray Region	**Western Tigray**	Kafta Humera	0	9	
		Tsegedi	0	5	

Table 15 Percentage of health facilities with medicines with no stock-out over the past 12 months by type of facility

Medicine	*Hospital (N=4)*	*Health Center(N=123)*
Amoxicillin tablets	4(100%)	104(84.6%)
Ampicillin Injection	4(100%)	54(43.9%)
Cephazoline Sodium Injection	4(100%)	3(2.4%)
Cefixime injection	3(75%)	2(1.6%)
Ceftriaxone injection	3(75%)	62(50.4%)
Cefotaxime injection (newborn)	1(25%)	0%
Chloramphenicol tablet	3(75%)	94(76.4%)
Chloramphenicol injection	3(75%)	42(34.1%)
Cloxacillin Sodium tab	3(75%)	100(81.3%)
Erythromicine tab	3(75%)	81(65.9%)
Flucloxacillin tab (for newborn)	3(75%)	7(5.7%)
Gentamicin injection	4(100%)	103(83.7%)
Metronidazole tab	4(100%)	10(8.1%)
Penicillin G injection	4(100%)	83(67.5%)
Trimethoprim/Sulfamethozazole	4(100%)	103(83.7%)

Table 16 Percentage of health facilities with family planning methods with no stock-out over the past 12 months by type of facility

Family planning	Hospital (N=4)	Health Center(N=123)	Health post(N=307)
Male condoms	4(100%)	108(87.8%)	230(74.9%)
Implanon	3(75%)	92(74.8%)	188(61.2%)
Jadelle	2(50%)	24(19.5%)	NA
Sinoimplants	2(50%)	1(0.8)	NA
Depo-provera (Injectables)	4(100%)	113(91.9%)	273(88.9%)
Oral contraceptive pills (OCs)	4(100%)	110(89.4%)	259(83.8%)
Emergency contraceptives	4(100%)	58(47.2%)	44(14.3%)
IUCDs	2(50%)	42(34.1%)	NA
Permanent methods (Vasectomy and tuba ligation)	2(50%)	23(18.7%)	NA

Table 17 Percentage of health facilities newborn care drugs with no stock-out over the past 12 months by type of facility

New born care Drugs	Hospital (N=4)	Health Center (N=123)	Health post (N=307)
Vitamin K (for newborn)	**3(75%)**	**43(35.0%)**	**3(1.0%)**
Nystatin (oral) (for newborn)	**0%**	**5(4.1%)**	**NA**
Oral rehydration solution	**4(100%)**	**111(90.2%)**	**200(64.7%)**
Oral polio virus	**4(100%)**	**103(83.7%)**	**108(35.0%)**
BCG	**4(100%)**	**97(78.9%)**	**105(34.0%)**
Gentian violet paint	**3(75%)**	**90(73.2%)**	**115(37.2%)**
Tetanus toxoid	**4(100%)**	**99(80.5%)**	**102 (33.0%)**

Table 18 Percentage of health facilities Neonatal Resuscitation Pack with no stock-out over the past 12 months by type of facility

Neonatal resuscitation Pack	Hospital (N=4)	Health Center(N=123)
Mucus extractor	**3(75.0%)**	**85(69.1%)**
Infant face masks (sizes 0, 1, 2)	**3(75.0%)**	**60(48.8%)**
Ventilatory bag	**2(50%)**	**72(58.5%)**
Suction catheter 10, 12 Ch	**1(25%)**	**20(16.3%)**
Infant laryngoscope with spare bulb & batteries	**1(25%)**	**NA**
Endotracheal tubes 3.5, 3.0	**2(50%)**	**NA**
Disposable uncuffed tracheal tubes (0-3.5)	**1(25%)**	**NA**
Suction apparatus: Foot – or electrically-operated	**3(75.0%)**	**NA**
Mucus trap for suction	**3(75.0%)**	**NA**
Mucus extractor	**3(75.0%)**	**85(69.1%)**
Infant face masks (sizes 0, 1, 2)	**3(75.0%)**	**60(48.8%)**
Ventilator bag	**2(50%)**	**72(58.5%)**
Suction catheter 10, 12 Ch	**1(25%)**	**20(16.3%)**
Infant laryngoscope with spare bulb & batteries	**1(25%)**	**NA**
Endotracheal tubes 3.5, 3.0	**2(50%)**	**NA**
Disposable uncuffed tracheal tubes (0-3.5)	**1(25%)**	**NA**
Suction apparatus: Foot – or electrically-operated	**3(75.0%)**	**NA**

Table 19 Percentage of health facilities with emergency medicines with no stock-out over the past 12 months by type of facility

Emergency medicines	Hospital (N=4)	Health Center(N=123)
Aminophylline injection	**3(75%)**	**NA**
Atropine sulfate tablet	**2 (50%)**	**NA**
Calcium gluconate inject	**2 (50%)**	**NA**
Digoxin injection	**2 (50%)**	**NA**
Diphenhydramine injection	**3(75%)**	**16(13.0%)**
Ephedrine injection	**4(100%)**	**NA**
Furosemide injection	**2 (50%)**	**40(32.5%)**
Hydrocortisone tablet	**2 (50%)**	**19(15.4%)**
Hydrocortisone Injection	**2 (50%)**	**8(6.5%)**
Naloxone Injection	**2 (50%)**	**NA**
Nitroglycerine injection	**1(25%)**	**NA**
Promethazine injection	**2 (50%)**	**12(9.8%)**
Promethazine tablet	**4(100%)**	**86(69.9%)**

Infection Prevention and Control

Use of standard infection prevention and hygiene measures is a core concept for the prevention of infection transmission in health care settings. Standard infection prevention practices recommended during delivery care are aimed not only at preventing maternal and neonatal infection, but also infection of the health worker, other workers and the public at large. Adherence to infection prevention practices was assessed against a set of standard measures that are proven to be effective, including hand washing practices, use of personal protective barriers, instrument processing starting with decontamination of reusable items in 0.5% chlorine solution, and disposal of contaminated items into appropriate containers (**See Table 18).**

Table 20 Percentage of health facilities Infection prevention equipment with no stock-out over the past 12 months by type of facility

Infection prevention Equipment	Hospital ((N=4))	Health Center ((N=123)	Health post (N=307)
Soap	**3(75.0%)**	**69(56.1%)**	**54(17.5%)**
Antiseptics	**4(100%)**	**89(72.4%)**	**90(29.3%)**
Clean Gloves	**4(100%)**	**110(89.4%)**	**185(60.2%)**
Sterile Gloves	**4(100%)**	**112(91.1%)**	**0%**
Heavy duty gloves	**4(100%)**	**73(59.3%)**	**0%**

Non-sterile protective clothing(apron)	**4(100%)**	**84(68.3%)**	**0%**
Decontamination container	**4(100%)**	**94(76.4%)**	**25(8.4%)**
Regular trash bin	**4(100%)**	**95(77.2%)**	**99(32.2%)**
Covered contaminated waste trash bin	**4(100%)**	**60(48.8%)**	**25(8.4%)**
Safety box	**4(100%)**	**109(88.6%)**	**288(93.8%)**
Protective eye glass(goggle)	**4(100%)**	**43(35.0%)**	**11(3.6%)**
Protective boots	**4(100%)**	**39(31.7%)**	**0%**

In general, the availability of different maternal and newborn supplies more specifically supplies such as, delivery set, material life saving drugs, neonatal resuscitation equipments, EmOC and Infection prevention supplies were lower in the all surveyed health facilities as described in the tables above (**See Table 12,13,14,15,16 17 and 18**,) but in Annual Performance Report of FMoH, shortage of drugs, medical supplies and other utilities were common reasons reported as a barrier only in newly constructed health facilities which have not yet started to provide full services in EFY 2005 **[33].**

The above gaps have also been explored and supported in the surveyed settings that, within the main theme of Quality, availability of supplies featured as the most frequently mentioned determinant of both community perceptions of whether local services were of good quality, and of providers' own sense of their effectiveness in service delivery. Although availability of resources more generally, specific medical, material, and pharmaceutical stock-outs were prioritized concerns across the health system in almost all sampled Woreda. For instance, Health extension workers confirmed lack of supplies at their health posts and lamented the fact that this affected their work and also their reputation within the community:

"The health post equipment's are not fulfilled, so when the community comes for service, they see it and criticize us, 'why you work like this?' Thus to remove this [negative] influence, sometimes we work outside the health post (HEW, Wogedie). Shortages of supplies like gloves, delivery kit, family cards, stationary etc. … supplies and materials have been requested, but they didn't provide us with what we need" (Health extension worker, Bensa). Community members believed that health centers were usually better supplied than health posts, and that was one of the criteria cited for deciding to seek MNCH (including delivery care) at health centers, despite their distance from many women's homes and reputation for unfriendliness, long waiting times, and male health workers.***(For further information refer annex II Section 1.2).***

The woreda health office heads and Hospital directors also acknowledged that problems with maintaining timely supplies to health centers, but did not make clear what the reasons were behind supply chain bottlenecks, or blamed zonal and regional health bureaus for lack of action:

... No supply of the solutions, ergometrine, personal protective equipment ... (Woreda health office head, Oromiya)

For example, two health centers became functional last year but still now, furniture is not supplied (Woreda health office head, Oromiya)

They need to avail supplies which are not managed by the woreda level. For example, there is only one delivery couch and there is no delivery set, but the health center is established two years ago. So they need to fulfill supplies which are not managed by the woreda (Woreda health office head, Amhara)

There are health institutions everywhere. The availability of health institutions does not indicate availability of the services. Take our hospital, the equipment and wards are not enough to provide quality services (Hospital interview #3)

*We have no adequate refrigerator, heater or incubator (Hospital interview #1) (***For further information refer annex II Section 1.2***).*

There were some exceptions, however. At least four woreda health office heads and three health center heads reported no difficulties with supplies, including drugs, which in these cases were distributed fairly efficiently through the PFSA (national body responsible for delivery of all medical supplies including medicines). In one case, despite not having its own resources, a health center was able to procure necessary equipment from neighboring facilities:

4.7. *Health Management Information System*

Generally, HMIS is defined as an adaptable system that collects, analyzes and responds to data about the occurrence and distribution of maternal and newborn health outcomes for a population within the catchment area, and links these outcomes with other relevant data that are translated into information to manage the activities to improve health outcomes. Preventive services, such as maternal and child health services, often lack standard recording instruments with guidelines. The GAVI Alliance (formerly the Global Alliance for Vaccines and Immunization) is an exception. It emphasizes data quality and has established principles and best practices in data recording and data quality that can be adapted for use in other technical areas. Lack of standard definitions also compromises the compilation of HMIS data from client / patient service delivery

records. Data reported from one area were not consistent with, or comparable to, data reported from another. Until the most recent annual reporting cycle, when consistent data definitions were introduced as one of the first steps in HMIS reform, different regions have had different definitions for basic indicators and data elements. Perhaps more importantly, the availability of accurate, timely, and consistent data at all facilities is crucial for countries to be able to effectively manage their health systems, allocate resources according to need, and ensure accountability for delivering on maternal and newborn health commitments. In our survey, all hospitals and around 90% of health centers have health management information system. Table 15 shows health facilities having formats with no stock-out over the past 12 months by type of facility**.** Amongst health facilities that had an HMIS system, 85(69.1%) had HMIS record filing system (in the form of protocols or formats), and 23 (18.7%) health centers started e- HMIS. Currently, the Ministry of Health has been finalizing the design of health information system to develop an integrated and comprehensive health information system that address wider scope that Health Management Information System (HMIS) for regular monitoring and evaluation of programs and to improve service delivery and health care management. Regarding the implementation of HMIS, all regions started implementation and are in various stages. At the national level, the HMIS has been implemented in 97(81.5%) of the hospitals and 2216 (77.3%) of the Health centers **[34]**. The status of HIMS in the surveyed facilities was higher than the national figure

To improve data quality, 102(82.9%) health centers received supportive supervision, 115(93.5%) facilities conducted regular self-assessment meeting,38(30.9%) record maternal death audit and 81 (65.9%) received external supportive supervision on integrated pharmaceuticals logistics system.

Table 21 Percentage of health facilities having formats with no stock-out over the past 12 months by type of facility

Formats	Hospital (N=4)	Health Center (N=123)	Health post (N=307)
Monthly formats in obtaining supplies	**4(100%)**	**80(65.5%)**	**128(41.7%)**
Report and Requisition Form	**4(100%)**	**95(77.2%)**	**162(52.7%)**
Stock record card	**4(100%)**	**56(45.5%)**	**51(16.6%)**
Bin card	**3(75%)**	**81(65.9%)**	**120(39.1%)**
Internal Hospital Report and Resupply Form	**3(75%)**	**72(58.5%)**	**67(21.8%)**

Facility Re-supply Form of 12 month	**4(100%)**	**94(76.4%)**	**179(58.3%)**
Chart booklet	**2(50%)**	**81(65.9%)**	**224(72.9%)**
Flip chart	**3(75%)**	**70(56.9%)**	**156(50.8%)**
Poster (Proper storage guideline)	**2(50%)**	**70(56.9%)**	**132(42.9%)**
Posters (Daily and weekly activity)	**1(25%)**	**30(24.4%)**	**65(21.2%)**
Posters(Monthly Activity)	**2(50%)**	**68(55.3%)**	**147(47.8%)**
Timer	**2(50%)**	**57(46.3%)**	**61(19.9%)**

5.6.1. Availability of Case Management Checklist

When women are seeking health care, the provider has to undertake a full assessment to ensure that care is planned according to individual needs and to detect and manage any problems. The case management checklist is critical to identifying problems, especially danger signs that require immediate attention. Health facilities were asked whether they have case management checklists, only 30(24.4%) of health centers reported they have used check lists and 24 (19.5%) reported that they have newborn examination checklist. The common reasons mentioned among the majority of health facilities for not having checklist was reported as absence of the checklist in the facility, no trainings given on the use of checklist and lack of information.

4.8. *Health Care Financing*

Removing direct user charges has the potential to markedly improve access to health services, especially for the poor. Fees for users or medications and supplies are well known as obstacles that deter women from seeking medical services for themselves and/or their newborn children. A government proclamation was issued in July of 2005 stating that maternal and selected child health services should be free of charge at the health center and health post level (primary health care level). However, results of this assessment indicate that maternal services that should be free are in fact not free, at most of the facilities. Among Health centers that provide MNCH services, 19.5% charge fee for services or required women to buy supplies for the services. Form the 24 health centers that request payment for MNH services, Amhara 11(45.8) and Oromia 8(33.3%) respectively take the lead while Tigray region health centers didn't receive any payment related to the service they provide. The most common reason for the service charge was shortage of drugs and supplies and absence of poverty certificate by the clients. At country level among areas of support funded by the MDG PF, maternal health services received the higher proportion (47.8%) followed by medical equipment supply (21.3%) and prevention and control of

communicable diseases. According to the latest information (as of August 2012), the government allocated a budget of ETB 25,527,418 for fee waiver beneficiaries. Although per capita allocation is increasing over time, the allocated budget for health in EFY 2005 was below the need of the sector for delivering quality care (30). This calls for further enhancing implementation of HCF reform and expansion of pre-payment schemes, such as community and social health insurance, as well as additional funds from different sources. Concerning financial planning of the facility, amongst the surveyed health centers 100(81.3%) reported that they have budget plan. Of these reported budget plan, the mean amount of budget requested by each facility was 565,460 birr and the mean amount of budget allocated was 244, 873 birr per health centers for the year 2005 E.C **[33].** In the qualitative findings some health facilities reported that there was no clear budget line for MNCH and they thus felt under pressure to allocate sufficient funds to fulfil certain policies (such as providing free services for pregnancy and newborn care):

"Still now, there is no specific budget allocated for maternal and newborn health care at health center level" (Health center head, Oromiya)

"There is no money allocated for this purpose, but from our internal income we provided free service for children ... We don't know by percent, but whatever the cost, we are serving mothers free" (Health center head, Amhara)

"I do not know why the woreda does not allocate money specifically ... due to our financial problems, mothers pay for some activities" (Health center head, SNNPR) **(For further information refer Annex II Section 1.2*)***

While most funding at health center level came from the woreda health office, many centers supplemented their budget with internal cost recovery, such as charging fees for some laboratory services and medications (as mentioned above), although no respondent claimed to charge for any basic ANC, delivery or PNC care. Some health centers also received supplementary supplies directly from international and local NGO and donor organizations, e.g. UNICEF. External donor support was seen as desirable and woreda health offices and health centers worked to link with partner agencies where possible, but then suffered from sudden loss of supplies if support was withdrawn and no measures to maintain sustainability had been put into place:

"Previously there was support for newborns, like soap, cloths, towels ... mothers are asking for these things so for the future, these things should be considered" (Health center head, SNNPR) **(For further information refer annex II Section 1.2)**

A HEW from FegetaLekuma described a similar situation where supplies provided by UNICEF in the past had all expired or been used, and the woreda had not made budgetary provision for those items, leading to shortages of drugs, gauze, soap and alcohol.

Complaints about lack of adequate financial and material resources emerged throughout interviews with providers and health systems authorities, and were raised by a few community members as well. Only a few of these comments were backed up with detailed examples of why the resources did not cover intended scope of work, and thus may represent attempts to transmit requests for future assistance through the interviews, as appeared to be the case with training.

(For further information refer annex II Section 1.2)

Table 22 Proportion of health center that charges fee for service they provide by regions, N=123

		Charge for the service		Total
		Yes	No	
Region	Amhara	11(28.2%)	28(71.8%)	39(100.0%)
	SNNP	5(12.2%) 20.8	36(87.8%)	41(100.0%)
	Oromia	8(27.6%)	21(72.4%)	29(100.0%)
	Tigray	0(.0%)	14(100.0%)	14(100.0%)
Total		24(19.5%)	99(80.5%)	123(100.0%)

4.9. *Client Exit Interview (Demand Side)*

4.9.1. Characteristics of Individuals

A total of 257 women who use of health services, especially hospitals and health centers at the time of survey were interviewed from the four regions. Out of the total clients interviewed, the majority 94 (36.6%) were from SNNPR, 77(30.0%) were from Amhara region, 61(23.7%) were from Oromia Region and 25(9.7%) were from Tigray region with the mean age of 27.1 years. The major reasons for visiting facilities were, as reported by the women, included antenatal care (33.1%), family planning (31%) child and immunization (12.8%). Other reasons reported by few of the women include referral for sick child, treatment for diarrhea, treatment for pneumonia, postnatal care among few others. Health facility utilization patterns and reasons for seeking care compare well across the four regions. The mean time it could take to reach the nearest health facility was 1.1 hour for those who walk more than 60 minutes and 18. 0 minute for those who

walk less than 60 minutes. Overall, 16% clients reported that they were forced to pay for the services they have received; regional variation has shown on table (table 22). Household factors that limit women from using services include; shortage of time (26.8 %,), low Income (17.5%), Lack of control over the house household resources (6.2%) and Lack of companion (for women) (3.6%).

Table 23 Proportion of client Requested to pay for the service they received by region (N=257) 2103

	AMHARA	OROMIA	SNNPR	TIGRAY	Total
Payment Requested for the service	**7(19.4%)**	**16(44.4%)**	**12(33.3%)**	**1(2.8%)**	**36**
Payment NOT requested for the service	**70(31%)**	**45(20.4%)**	**82(37.1%)**	**24(10.9%)**	**221**
Total	**77**	**61**	**94**	**25**	**257**

4.9.2. Awareness of the Danger Signs of Maternal and Newborn Illness

Assessment of the awareness of mothers regarding warning signs that indicate women and child needs treatment is crucial in designing appropriate Behavioral Change Communication (BCC) strategies. In this survey women who seek care for MNCH services during the survey were asked to spontaneously mention the warning signs that indicate mothers and newborn should be taken to health facility. Overall, it appears that women in the CIFF project areas of the 4 regions were not sufficiently aware of those signs of Maternal and newborn illnesses that indicate the need for treatment (Table 17). Problems in pregnancy that might need medical treatment reported by mothers include severe headache (35.4%), Blurry vision (12.1%), Reduced or absent fetal movement(28.8%), High blood pressure(8.9%), Edema of the face/hands (10.5%), Convulsions(4.3%), Excessive vaginal bleeding(45.7%), Severe lower abdominal pain(40.5%) and Fever(12.5%) table. Newborn danger signs reported by mothers mainly concern a few issues, which include fever (59.5%), poor sucking or feeding (41.6%%), and difficult/fast breathing (24%), diarrhea (42.2%), persistent vomiting (16.3%) and infection (10.5%), 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 pregnancy and newborn danger signs exhibited similar pattern across the regions. The importance of seeking health care for pregnancy was reported by 63.4% interviewed mothers and 79.4% these mothers reported that they have ever received pregnancy care in their life time. While it is difficult to assess why some women

appeared to be more trusting of modern medical technology while others preferred traditional practices such as fetal re-alignment (which can be dangerous in itself if the person performing the procedure is overly vigorous or unskilled in identifying fetal parts), some possible determinants could be extent of exposure to health education messages, positive relationships with local HEW, or hearing successful stories from friends and family members who delivered in health centers or hospitals. Certainly some mothers themselves suggested that HEW and a general rise in awareness levels were likely to change practices over time.

"*……The main reason for low MNCH utilization is awareness problems. There are some mothers who didn't change their cultural thoughts on this services, saying 'our earlier practice is good and we don't want to leave them.' ... after we get education from HEW, we are taking such services from health facilities and we are changed". (Mothers' FGD, Legambo)****(For further information refer Annex II Section 1.2)***

Table 24 Percentage women who seek MNCH care at the time of survey who spontaneously reported a particular danger sign for pregnancy and newborn that required treatment or hospitalization/admission , CIFF project areas, Amhara, SNNP, Oromiya and Tigray,

Maternal & newborn problems	Amhara N=77	SNNPR N=94	Oromiya N=61	Tigray N=25	Weighed N=257
Pregnancy danger signs mentioned					
Severe Headache	42.9%	26.6%	41%	32%	35.4%
Blurry Vision	13%	8.5%	14.8%	16%	12.1%
Absent fetal movement	27.3%	34%	21.6%	32%	28.8%
High blood pressure	6.5%	7.4%	6.6%	28%	8.9%
Edema of face or hand	14.3%	8.5%	6.6%	16%	10.5%
Convulsion	2.6%	2.1%	8.2%	8%	4.3%
Excessive virginal bleeding	51.9%	43.6%	31.1%	68%%	45.7%
Severe lower abdominal pain	46.8%	41.5%	37.7%	24%	40.5%
Fever	13%	12.8%	11.5%	16%	12.5%
Newborn danger signs mentioned					
Fever	63.6%	62.8%	47.5%	64%	59.5%
Poor sucking or feeding	39%	34%	45.9%	68%	41.6%
Difficulty or fast breathing	26%	21.3%	13.1%	32%	24%
Diarrhea	49.4%	38.3%	44.3%	32%	42.2%
Persistent vomiting	22.1%	16%	14.8%	4%	16.3%
Infection	3.9%	12.8%	14.8%	12%	10.5%
Lethargy	5.2%	3.2%	3.3%	0%	3.5%
Unconscious	1.3%	3.2%	3.3%	4%	2.7%
Convulsion	2.6%	10.6%	3.3%	0%	5.4%
Born premature	3.9%	3.2%	0%	0%	2.3%
Red or discharging eyes	2.6%	0%	3.3%	0%	1.6%

Overall, 213(82.9%) women reported that they were satisfied with the services, 30(11.7%) were more or less satisfied and 14(5.4%) were less satisfied.

Table 25 Percentage women who seek MNCH care at the time of survey expressed their level of satisfaction, CIFF project areas, Amhara, SNNP, Oromiya and Tigray, 2013

Level of satisfaction	Region Name				Weighed (N=257)
	Amhara	SNNPR	Oromiya	TIGRAY	
Satisfied	60(77.9%)	76(80.5%)	55(90.2%)	22(88%)	213(82.9%)
Not satisfied	17(22.1%)	18(19.5%)	6(9.8%)	3(22%)	44(17.1%)

The findings from qualitative reports indicated that in terms of community members' motivation to use services, there was general agreement that willingness to use health facilities were steadily increasing. While this was seen to be a positive development, there were also some concerns that a rapid rise in health-seeking at MNCH facilities could potentially overstretch existing capacity and compromise quality: as evidenced here *"Yes, the pregnant women do have good health seeking behavior. Their seeking behavior is alarmingly increasing over time, e.g. the number of institutional deliveries is increasing rapidly when we compare with the previous year. Even it is so difficult to cover the health center delivery by two midwives" (Woreda health office head, Tigray* **(For further information refer annex II Section 1.2)**

This baseline asses the best available information on facility profiles , official figures for population demographic, assumed that facilities are functioning, assumed that the minimum required staffs are in place and building health facilities and basic pre-service training of health workers and cross cutting issues that are shared among all health services like logistics, HMIS and financial issues. And also the assessment focused on drugs and supplies required to provide MNH services and program specific activities.

Even though, it is difficult to compare Hospitals with Health centers and Health post service in this particular study due to the very limited number of hospital assessed. Overall hospitals were generally better for MNCH service delivery than health centers and health posts. The hospitals generally had good stock of equipment and instruments to carry out almost all MNCH services but health centers lack drugs and supplies to provide these services. Some of Woreda specific results were annexed (**Appendix A to L**)

5. ASSESSMENT STRENGTH AND LIMITATIONS/CONSTRAINTS

Strength

- Overall coverage of health facilities specifically health centers and hospital in the woreds
- Triangulation of quantitative result with qualitative finding
- Qualitative data is Large dataset for a qualitative study with impressive coverage across the study area
- Collecting too much data for further research consumption.

Limitation

- The working hours of the facilities causing limitation on staff availability and accessibility to various units of the facilities, at times resulted in intensified field operations. The overall time frame for the project could not be extended due to limitation of project time line that demanded complete the tasks within certain stipulated period. However, the assessment was able to cover all the selected facilities as endorsed in the document. Another limitation to the assessment was the unavailability of reliable record and data in the facilities due to lack of systematic way of reporting and record keeping. The assessment referred to the data from the different departments /units and made necessary crosschecks
- The transcription and translation process was done using audio recording than using transcribing them verbatim.
- Social desirability bias was one of the potential challenge in this survey where respondents provide information they believe is "expected" or "correct," such as statements about the government's positive contribution to quality of life, or assurances that there are *no* examples of behavior that does not adhere to recommended health-seeking practices,
- Since the survey doesn't include the household level data the Indicators only represent public health facility services.

6. CONCLUSION AND RECOMMENDATION

Conclusion

This baseline survey sets benchmarks and useful information concerning maternal and newborn health for the CIFF program interventions in the four populous regions of Ethiopia. Whereas the four regions combined results are relevant for the broader understanding and framing of program intervention activities, region-specific findings are more relevant to guide intervention needs at regional and even lower levels.

A summary of the findings and recommendations are detailed below.

- Twenty nine percent of pregnant mothers in the catchment population received antenatal care from the surveyed health facility (health centers and hospital) (highest is recorded in Tigray region (52.39%) and the least is recorded in SNNPR 20.3% but only 6 % of them made four or more ANC visits during the length of their pregnancy.
- Health facility / skilled health personnel deliveries rate is 16%.
- Out of 4 hospitals, 2 lack equipment and supply for immediate and essential newborn care services (Adola Hospital and Maereg Hospitals lack advanced resuscitation support and pediatric nursery equipment and supply), 83.7% of health centers reported that they have had basic neonatal resuscitation services but only 6.5% have incubator for newborn care, 6.5% have advanced neonatal support services, 6.5% have pediatric nursery services.
- Ninety five percent of health centers were qualified as BEmONC facilities.
- The most common reasons mentioned for not performing the signal function were lack of supplies/drugs/equipment (58.54%), the lack of trained human resources (17.89%) and no patient indication (13.01%).
- Out of 123 health centers surveyed only one in ten (11.4%) of them were equipped with three maternal life-saving medicines (Oxytocin, Ergometrine and Magnesium sulfate) with adequate quantities all the time.
- About 90% of health centers have health management information system, 18.7% of them started e- HMIS, 24.4% had posters (daily and weekly activity) and 24.4% reported the use of any type of case management checklist.

- The majority (79.7%) of surveyed health centers reported no staff trained in Newborn Corner, 41.4% of health posts reported that none of the HEWs trained in clean and safe delivery (Kefta Humera Woreda none of the HEWs trained in clean and safe delivery).
- Although the policy states MNH services are free of charge, around 20% health facilities required women to buy supplies for maternal and child health services.
- Of 257 women interviewed the importance of seeking health care for pregnancy was reported by 63.4%, but problems in pregnancy that might need medical treatment were reported by a very small percentage of the women , blurred vision (12.1%), reduced or absent fetal movement(28.8%), high blood pressure(8.9%), edema of the face/hands (10.5%), convulsions(4.3%) and fever(12.5%).
- Some health education messages have been taken up and changed local practice more quickly than others
- Use of MNCH services is increasing, reflecting the rise of MNCH on the political agenda and concomitant budget commitments
- Broader mechanisms to translate programme readiness into sustainable system are not functioning well, compromising quality of available services
- Communication across different levels of the health system was poor
- Local problem solving approaches using available resources is not well functioning challenges as they emerge

Recommendation

Overall, considering this findings on the situation of MNH service provision, the indication is that there is a need for a lot of effort for reaching a level where the health facilities would be providing optimum MNCH services. The four regions combined results are relevant for the broader understanding and framing of program intervention and guide intervention activities at all levels. Based on the findings, improving maternal and neonatal health outcomes in the program areas need every effort that should be made to:

3. Expand the services and resources across all facilities. For instance health centers and health posts should made to start offering services that were limited to hospitals at a reasonable standard;

4. Address the regional disparities currently observed in the distribution of these services and resources;
    - The gap of EmONC functionality should be filled-in on priority basis (in-service training should be organized for a wide range of service providers and supplies and equipment's need to be considered altogether.
    - Strengthen the chain/mechanism to ensure availability of essential MNC medications, with appropriate equipment and supplies.
    - Reduce average duration of stock outs for all products, minimize expiry of all products through continuous stock tracking and re-distribution mechanisms.
    - There is a need for strengthening HMIS performance and standardization.
    - Standardization on waiving fees and payment. Women and children with medical emergencies should not have their treatment delayed due to payment requirements. If they cannot pay for these services, their fees should be waived.
    - There should be a kind of mechanism to strengthen demand creation and meeting the demands of rural communities.
    - Good communication across different levels of the health system should be maintained to improve quality even in the absence of adequate financial and material resources
    - There should be local problem solving approaches using community mobilization strategies like HDAs.

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ANNEXES

Annex I: Woreda Based Quantitative Result Report

Appendix A. Number of health centers with newborn medicines with no stock-out over the past 12 months by Woreda

Woreda Name	Vitamin K (for newborn)	Nystatin (oral) (for newborn)	Oral rehydration solution	Oral polio virus drops	BCG injections	Gentian violet paint	Tetanus toxoid	Total Health Centers Surveyed
Adola Rede	4	0	4	4	4	2	4	4
Alicho Worero	2	0	1	1	5	5	5	5
Arero	1	0	3	3	2	3	2	3
Banja	2	0	4	4	3	2	3	4
Bensa	1	0	8	7	7	6	6	8
Bona Zuriya	0	0	4	4	4	3	4	4
Borricha	2	0	8	6	6	4	6	8
Dara	2	2	6	6	6	4	6	6
Dhas	3	0	4	2	2	3	2	4
Dillo	0	0	1	1	1	0	1	4
Fegeta Lekuma	5	0	5	6	6	5	6	6
Girja	1	0	2	0	0	2	0	2
Guanga	2	0	4	4	4	3	4	4
Guanga Shekuda	1	0	1	1	3	4	4	4
Kefta Humera	4	1	8	9	9	9	9	9
Legambo	1	1	9	8	8	7	7	9
Loka Abaya	1	6	6	6	6	6	5	6
Odo Shakiso	1	0	1	2	1	2	2	3
Saba Bor	1	0	1	0	0	3	1	4
Saynt	1	0	5	4	4	2	5	7
Taltale	2	1	5	3	3	3	3	5
Tsegedie	3	0	3	5	5	3	5	5
Wadera	0	2	1	1	1	1	1	2
West Azernet	0	4	4	4	4	3	4	4
Wogdie	0	5	5	5	5	4	4	5

Appendix B. **Number of health centers with Urotonics and Prostaglandins with no stock-out over the past 12 months by Woreda**

Woreda Name	Magnesium Sulfate	Diazepham	Ergometrine	Oxytocine	Total Health Centers Surveyed
Adola Rede	3	2	3	3	4
Alicho Worero	1	1	3	5	5
Arero	0	1	3	3	3
Banja	0	1	4	4	4
Bensa	1	1	7	5	8
Bona Zuriya	0	4	3	4	4
Borricha	1	2	5	5	8
Dara	4	1	5	6	6
Dhas	0	1	1	2	4
Dillo	1	1	1	1	4
Fegeta Lekuma	1	2	6	6	6
Girja	0	1	1	1	2
Guanga	0	3	4	4	4
Guanga Shekuda	0	1	3	4	4
Kefta Humera	0	8	4	8	9
Legambo	3	3	7	8	9
Loka Abaya	3	1	4	5	6
Odo Shakiso	0	1	1	2	3
Saba Bor	0	1	1	1	4
Saynt	0	1	5	5	7
Taltale	2	3	2	1	5
Tsegedie	0	1	4	5	5
Wadera	0	1	1	1	2
West Azernet	1	0	1	3	4

Appendix C Number of health centers with Emergency drugs with no stock-out over the past 12 months by Woreda

Woreda Name	Diphenhydra minetablet	Frusemide injection	Hydrocorti son tablet	Hydrocortiso neinjection	Promethazi ne injection	Promethaz ine tablet	TotalHC Surveyed
Adola Rede	2	1	2	0	1	3	4
Alicho Worero	0	1	1	0	0	4	5
Arero	0	2	0	0	1	2	3
Banja	0	1	2	1	0	3	4
Bensa	0	1	1	1	1	6	8
Bona Zuriya	0	1	0	0	0	2	4
Borricha	0	2	0	1	3	5	8
Dara	0	1	2	0	1	3	6
Dhas	0	1	0	0	0	2	4
Dillo	0	1	0	0	0	2	4
Fegeta Lekuma	2	1	2	1	1	6	6
Girja	1	2	1	1	0	2	2
Guanga	2	1	1	2	0	3	4
Guanga Shekudad	0	2	2	1	0	4	4
Kefta Humera	1	0	1	0	1	5	9
Legambo	3	5	0	0	2	9	9
Loka Abaya	0	1	0	0	0	4	6
Odo Shakiso	0	0	0	0	0	2	3
Saba Bor	1	1	0	0	0	2	4
Saynt	0	3	0	0	1	5	7
Taltale	1	2	2	0	1	1	5
Tsegedie	1	1	0	0	0	3	5
Wadera	0	1	0	1	0	1	2
West Azernet	0	2	1	0	0	3	4

Appendix D. **Number of health posts no stock out of family planning method in the last 12 months by woreda**

Woredaname	Male condom	Implanon	Depo-Provera	oral contraceptive	Emergency
Adolarede	9	2	11	10	0
Alicho Worero	12	10	13	13	2
Arero	7	6	9	8	2
Banja	11	5	10	11	3
Bensa	11	16	18	14	2
Bona Zuriya	11	13	14	13	1
Borricha	14	17	20	15	1
Dara	8	11	15	13	2
Dhas	3	4	6	5	1
Dillo	6	5	7	7	0
Fegeta Lekuma	12	8	14	13	4
Girja	5	4	5	6	1
Guanga	7	0	8	8	2
Guanga Shekudad	5	2	7	6	0
Kefta Humera	9	8	9	8	3
Legambo	12	6	9	13	5
Loka Abaya	8	12	13	12	0
Odo Shakiso	10	11	12	12	0
Saba Bor	10	7	9	6	1
Saynt	11	5	15	16	2
Taltale	4	8	10	8	4
Tsegedie	9	5	10	8	4
Wadra	9	10	8	8	0
West Azernet	10	9	10	9	1
Wogidie	14	2	15	15	2

Appendix E. **Number of health posts having IEC materials as job aid for health workers by woreda**

Woreda Name	ANC	PNC	FP	PMTCT
Adolarede	5	3	5	2
Alicho Worero	13	13	12	11
Arero	3	3	5	0
Banja	8	7	9	4
Bensa	13	9	13	5
Bona Zuriya	10	8	13	6
Borricha	16	10	16	7
Dara	17	15	18	14
Dhas	0	0	2	0
Dillo	3	3	3	1
Fegeta Lekuma	10	5	10	2
Girja	2	2	2	2
Guanga	0	0	0	0
Guanga Shekudad	5	5	5	0
Kefta Humera	3	3	3	1
Legambo	17	13	17	8
Loka Abaya	5	9	10	0
Odo Shakiso	6	5	6	2
Saba Bor	4	1	1	0
Saynt	10	8	11	11
Taltale	4	3	6	3
Tsegedie	6	3	7	1
Wadra	3	2	5	0
West Azernet	10	10	9	9
Wogidie	12	13	11	6

Appendix F. **Number of health posts having the IEC materials for clients by woredas**

Woreda Nname	ANC	PNC	FP	PMTCT
Adolarede	4	1	1	0
Alicho Worero	10	2	4	7
Arero	7	6	9	3
Banja	8	7	6	4
Bensa	13	7	7	5
Bona Zuriya	9	9	13	4
Borricha	17	6	13	8
Dara	16	13	17	9
Dhas	6	16	18	4
Dillo	3	6	6	2
Fegeta Lekuma	9	3	1	1
Girja	5	5	10	3
Guanga	0	2	3	0
Guanga Shekudad	5	0	0	0
Kefta Humera	8	5	5	3
Legambo	15	5	5	4
Loka Abaya	11	11	15	0
Odo Shakiso	10	11	11	4
Saba Bor	4	6	10	1
Saynt	11	2	5	9
Taltale	6	11	11	4
Tsegedie	5	4	8	1
Wadra	4	2	7	0
West Azernet	9	2	6	8
Wogidie	12	8	8	4

Appendix G. Number of Health centers with Basic Emergency Obstetrics and Newborn Care Equipment with no stock-out over the past 12 months by Woreda

EmONC equipment	Rede	Worero	Arero	Banja	Bensa	Zuriya	Borricha	Dara	Dhas	[illegible]	Lekum	Shija	Guariga	Shekuda	Humera	Legambo	[illegible]	Shakiso	Saba Bor	Sayint	Taltale	Tsegedie	Wadera	Azernet	Wogdie
Oxygen source	0	1	0	0	1	0	1	2	0	2	0	0	1	2	1	1	2	0	1	0	1	0	0	1	1
BP cuff	2	5	3	4	7	4	6	6	4	2	5	2	4	4	9	7	6	2	3	3	5	4	1	2	5
Stethoscope	3	5	3	4	7	4	8	6	4	2	6	2	4	4	9	8	6	3	4	4	5	5	1	4	5
Fetal stethoscope	4	5	3	4	8	1	8	6	4	1	6	0	4	3	9	9	4	3	4	4	5	5	1	4	5
Kidney basins	4	4	2	4	7	3	1	5	4	1	6	2	4	4	9	9	6	3	3	3	5	5	1	3	5
Sponge bowls	3	4	1	3	5	3	5	2	3	2	4	1	4	3	7	7	4	0	1	1	4	5	0	1	4
Clinical oral thermometer	0	0	1	1	1	0	1	1	2	0	1	0	1	0	1	1	3	0	1	2	0	1	0	0	3
Rectal thermometer	1	0	0	1	0	0	1	1	0	0	0	0	1	0	0	1	1	0	2	0	1	0	0	0	1
Low reading thermometer (32 or 35 ^{0} C)	0	1	2	2	4	1	4	3	0	2	3	1	3	0	0	7	2	0	3	1	0	2	0	2	2
Scissors	3	4	2	4	4	4	5	5	4	1	5	2	4	4	9	9	6	3	4	3	5	5	2	4	5
Needles and Syringes (10-20cc)	1	3	2	4	1	1	2	4	1	2	5	2	4	4	3	8	5	1	0	2	3	0	1	2	4
Syringes (1ml, 2ml, 5ml, 10ml)	3	5	2	4	7	3	5	4	4	2	5	1	1	4	8	9	5	2	0	3	3	5	1	4	5
Needles (23-25 gauge)	0	2	2	1	1	1	5	3	2	2	3	0	1	2	3	8	5	2	0	3	3	0	1	0	2
Suture needles/suture materials	3	4	2	4	8	4	2	6	4	1	6	2	4	4	9	9	6	2	2	3	4	5	1	4	4
Branulla for IV line (16-18)	4	1	2	4	4	2	6	5	4	2	4	2	2	4	7	8	6	1	0	4	5	2	0	2	4
IV Infusion stand(s)	4	5	3	4	7	4	5	5	4	1	5	2	4	4	9	9	6	3	3	2	4	5	2	3	4
Urinary catheters	4	5	2	4	6	4	8	5	4	2	5	1	3	4	9	8	5	1	1	3	3	4	1	4	2

IV cannula	**4**	**5**	**3**	**4**	**7**	**4**	**4**	**4**	**3**	**0**	**5**	**2**	**4**	**4**	**8**	**9**	**6**	**3**	**4**	**3**	**5**	**5**	**2**	**4**	**5**
IV fluid (neonatal giving) set/umbilical	**0**	**0**	**1**	**3**	**2**	**0**	**6**	**4**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**1**	**2**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**2**
Uristix (dip stick for protein in urine)	**0**	**2**	**2**	**1**	**0**	**2**	**1**	**3**	**0**	**1**	**5**	**0**	**0**	**3**	**3**	**5**	**1**	**2**	**0**	**1**	**1**	**0**	**0**	**1**	**1**
Adult ventilator bag and mask	**2**	**1**	**2**	**2**	**3**	**1**	**1**	**1**	**1**	**0**	**3**	**0**	**2**	**2**	**4**	**3**	**1**	**0**	**1**	**1**	**3**	**2**	**0**	**3**	**1**
Mouth gag	**0**	**1**	**0**	**1**	**0**	**2**	**6**	**1**	**0**	**2**	**1**	**2**	**1**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
Wheelchair	**2**	**1**	**0**	**0**	**3**	**1**	**2**	**4**	**2**	**1**	**4**	**2**	**2**	**1**	**4**	**8**	**0**	**1**	**3**	**2**	**4**	**3**	**0**	**2**	**1**
Stretcher with trolley	**1**	**3**	**2**	**1**	**2**	**3**	**4**	**4**	**3**	**2**	**4**	**1**	**2**	**4**	**3**	**7**	**5**	**1**	**4**	**2**	**4**	**1**	**1**	**2**	**2**
Examination table	**1**	**4**	**1**	**2**	**6**	**3**	**1**	**5**	**3**	**0**	**5**	**2**	**4**	**4**	**7**	**9**	**3**	**1**	**4**	**3**	**4**	**4**	**2**	**4**	**3**
Labor/delivery table with stirrups	**4**	**1**	**2**	**4**	**0**	**1**	**7**	**5**	**4**	**2**	**2**	**0**	**1**	**4**	**2**	**6**	**6**	**0**	**4**	**2**	**2**	**3**	**0**	**0**	**2**
Labor/delivery table without stirrups	**1**	**4**	**0**	**3**	**7**	**4**	**1**	**6**	**2**	**2**	**5**	**2**	**4**	**2**	**8**	**5**	**4**	**0**	**2**	**2**	**3**	**2**	**2**	**4**	**1**
Adult weighing scale	**2**	**5**	**1**	**1**	**8**	**4**	**7**	**6**	**4**	**2**	**6**	**2**	**4**	**4**	**9**	**7**	**3**	**2**	**4**	**3**	**3**	**5**	**0**	**4**	**5**
Baby weighing scale	**4**	**4**	**2**	**4**	**7**	**3**	**8**	**6**	**4**	**2**	**6**	**2**	**4**	**4**	**9**	**9**	**6**	**3**	**4**	**3**	**5**	**5**	**2**	**4**	**4**
Partographs (modified form)	**3**	**4**	**2**	**4**	**2**	**4**	**8**	**5**	**2**	**1**	**3**	**1**	**2**	**4**	**9**	**8**	**6**	**2**	**3**	**2**	**4**	**3**	**1**	**4**	**5**
Neonatal resuscitating table	**4**	**2**	**1**	**4**	**2**	**3**	**5**	**6**	**2**	**1**	**0**	**0**	**2**	**4**	**5**	**5**	**2**	**1**	**2**	**1**	**2**	**0**	**0**	**1**	**2**
Plain thumb forceps	**0**	**3**	**1**	**2**	**3**	**3**	**3**	**3**	**0**	**2**	**0**	**1**	**2**	**4**	**0**	**7**	**2**	**0**	**3**	**0**	**1**	**0**	**0**	**1**	**1**
Dressing forceps	**3**	**3**	**0**	**3**	**6**	**2**	**4**	**3**	**4**	**1**	**5**	**2**	**4**	**3**	**3**	**8**	**4**	**2**	**4**	**5**	**4**	**4**	**1**	**1**	**5**
Surgeon's handbrush w/ nylon bristles	**0**	**0**	**0**	**3**	**0**	**1**	**5**	**2**	**0**	**0**	**0**	**1**	**1**	**2**	**6**	**0**	**5**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
Watch or clock with second hand	**1**	**0**	**0**	**3**	**0**	**1**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**7**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**1**
Incubator	**0**	**0**	**0**	**0**	**1**	**2**	**1**	**1**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**2**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**
Measuring tape	**3**	**4**	**2**	**1**	**5**	**0**	**0**	**0**	**4**	**0**	**5**	**0**	**4**	**1**	**9**	**9**	**1**	**1**	**2**	**3**	**3**	**3**	**0**	**0**	**5**
Radiant warmer	**0**	**1**	**0**	**1**	**1**	**0**	**4**	**4**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**1**	**5**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**
NG tubes for oxygen administration	**1**	**0**	**1**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**
Blood sugar testing sticks	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**2**	**0**	**0**	**1**	**1**	**2**	**0**	**1**	**3**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**
Icterometer	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Fluorescent tubes for phototherapy	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Pulse oximeter	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Apnoea monitor	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Paladay /cup for breast milk expression	**0**	**1**	**0**	**0**	**3**	**2**	**1**	**0**	**1**	**2**	**1**	**0**	**1**	**1**	**1**	**7**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**
Instrument trolley	**0**	**5**	**2**	**1**	**8**	**4**	**5**	**0**	**4**	**1**	**6**	**2**	**2**	**3**	**7**	**9**	**2**	**0**	**4**	**3**	**0**	**2**	**2**	**4**	**3**
Instrument tray	**0**	**5**	**0**	**4**	**7**	**4**	**2**	**1**	**3**	**2**	**3**	**0**	**4**	**4**	**7**	**9**	**4**	**1**	**3**	**1**	**0**	**1**	**1**	**4**	**4**
Beds	**3**	**4**	**1**	**2**	**6**	**3**	**8**	**6**	**3**	**2**	**4**	**0**	**4**	**4**	**8**	**9**	**4**	**1**	**4**	**1**	**4**	**2**	**2**	**3**	**3**
Linens	**0**	**4**	**2**	**2**	**1**	**1**	**3**	**0**	**2**	**2**	**3**	**0**	**1**	**1**	**8**	**7**	**6**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**
Towels or cloth for newborn	**1**	**2**	**2**	**2**	**0**	**0**	**1**	**0**	**3**	**2**	**1**	**0**	**0**	**3**	**2**	**3**	**1**	**0**	**1**	**0**	**1**	**1**	**0**	**1**	**1**
Blankets for cold weather	**0**	**3**	**1**	**1**	**0**	**2**	**1**	**2**	**2**	**2**	**1**	**0**	**3**	**0**	**2**	**8**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**
Water filter (potable H2O for clients)	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**2**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
Total Health Center	**4**	**5**	**3**	**0**	**8**	**4**	**8**	**6**	**4**	**4**	**6**	**2**	**4**	**4**	**9**	**9**	**6**	**3**	**4**	**7**	**5**	**5**	**2**	**4**	**5**

Appendix H-**number of health posts with no stock out of infection prevention equipment in the last 12 months by woreda**

S.No	Name of woredas	Soap	Tooth brush	Clean cloth	Clean towels	Regular trash bin	Covered contaminated waste trash bin	Safety box	Bleach	Deconta mination Container	Prepared decontam ination solution	Utility or heavy duty glove	Sterile or clean gloves	Plastic aprons	Protecti ve glass	Plastic bag	Alco hol	Boiling pan or pot
1.	Kafta humera	1	7	2	2	9	0	9	7	6	7	1	8	6	1	1	8	9
2.	Tsegedi	1	2	0	0	5	1	11	2	6	2	1	9	2	0	1	7	8
3.	Banja	3	3	5	3	7	2	12	3	5	1	4	8	8	1	2	2	7
4.	Fegetalukma	3	3	3	1	2	2	14	5	4	3	1	6	9	3	1	4	10
5.	Guange	2	0	5	4	1	0	8	4	7	4	0	5	8	0	2	2	6
6.	Guanga shlekudade	0	3	2	2	1	0	6	0	5	1	0	2	5	0	4	1	3
7.	Wogelde	1	2	4	1	3	0	15	0	3	1	0	14	12	1	2	2	11
8.	Sayent	0	0	0	0	0	0	1	0	0	0	0	1	1	0	1	0	1
9.	Legambo	5	0	6	8	18	7	16	8	11	8	4	9	9	2	8	1	14
10.	Arero	1	0	3	1	4	1	9	1	3	1	0	5	3	0	0	2	3
11.	Borbor (Dahs)	0	0	1	0	0	0	6	0	0	0	1	1	1	0	0	0	0
12.	Dillo	0	0	0	0	0	2	6	0	0	0	0	5	0	0	0	3	1
13.	Telteli	1	0	3	1	4	0	10	0	2	0	3	6	5	0	1	1	3
14.	AdolaRede	1	0	0	0	1	0	0	0	0	0	0	4	2	0	0	1	1
15.	Girja	1	0	0	0	1	0	4	0	0	0	0	3	2	0	0	2	1
16.	Odoshakiso	1	2	3	4	2	0	12	1	0	0	1	5	3	0	2	2	7
17.	Sebabur	1	4	1	1	2	1	10	1	1	1	1	3	5	0	0	1	4

18.	Wadera	0	0	0	0	0	0	1	0	0	0	0	1	1	0	1	0	1
19.	Bensa	2	3	2	1	4	1	17	3	4	4	1	12	6	1	1	4	10
20.	Bona Zuria	3	1	1	5	2	0	14	0	1	0	1	11	4	0	4	7	5
21.	Dara	7	0	0	1	0	2	18	1	5	1	1	13	5	1	4	4	11
22.	Borricha	2	2	2	1	10	3	19	2	4	4	2	10	8	0	1	5	5
23.	Loka Abaya	0	0	0	1	1	2	0	13	2	0	0	12	5	0	0	10	5
24.	Alicho Worero	3	5	1	0	12	1	13	7	1	6	3	13	11	0	7	8	9
25.	West Azernet	5	9	8	3	6	1	10	3	1	4	0	9	8	0	0	7	9

Appendix I. **Number of Health Post with no stock out of basic supply and equipment in the last 12 months by woreda**

Woreda Name	scissor	Blood Pressure Cuff	Statescope	Foetoscope	Clinical thermometer	Watch or clock	Suction	Gauze	Kelly clamp	Cord ties	Baby weighing	adult weighing	Measuring tape	Labor Chart	Needle and syringes	Neonatal recessitation	Clean birth kit	Refrigerator	Spring infant scale	Penguin Suction
Adolarede	8	3	4	4	4	0	0	3	2	2	10	9	4	0	8	1	1	2	6	0
Alicho Worero	13	13	13	13	13	9	9	13	11	13	11	12	11	5	13	1	3	1	8	0
Arero	7	6	6	8	6	1	0	3	2	6	7	5	4	3	6	2	2	0	3	0
Banja	10	7	8	7	8	4	1	7	3	11	8	10	3	1	9	0	7	2	8	0
Bensa	13	9	12	15	12	7	2	6	6	10	17	10	6	0	15	1	6	6	7	0
Bona Zuriya	10	11	11	11	11	11	10	12	10	11	10	9	11	7	14	9	8	1	13	10
Borricha	14	7	12	18	12	9	2	2	5	10	18	16	14	2	15	1	2	1	12	0
Dara	16	16	17	16	17	9	3	5	12	10	14	14	16	4	18	2	6	1	11	3
Dhas	3	3	4	4	4	0	0	2	1	1	2	4	4	0	4	1	0	0	0	0
Dillo	6	2	2	3	2	1	0	4	0	2	1	2	4	0	6	0	1	3	4	0
Fegeta Lekuma	12	12	13	11	13	9	4	6	3	12	9	8	8	1	12	1	9	3	6	0
Girja	3	2	2	3	2	0	0	1	0	2	3	2	2	1	4	0	1	0	3	0
Guanga	8	7	8	8	8	5	0	7	0	7	3	7	5	1	7	0	7	0	3	0
Guanga Shekudad	6	5	7	7	7	4	0	2	4	6	2	4	6	0	6	0	2	1	7	0
Kefta Humera	9	7	9	9	9	1	0	6	2	7	8	9	6	1	8	1	2	1	9	0
Legambo	16	16	17	17	17	6	2	14	4	15	15	14	16	2	17	2	12	1	7	0
Loka Abaya	12	10	10	11	10	4	7	7	6	5	12	12	13	1	11	5	5	3	7	4
Odo Shakiso	11	9	9	9	9	0	3	3	3	6	2	9	7	1	10	3	3	2	7	1
Saba Bor	9	7	8	7	8	0	0	3	5	5	7	7	7	0	6	1	2	3	4	1

Saynt	8	6	7	7	7	5	1	5	2	6	5	8	4	0	8	1	5	2	10	0
Taltale	10	6	7	11	7	0	1	5	4	7	9	7	4	3	7	2	3	2	3	1
Tsegedie	10	7	11	11	11	3	1	6	6	8	6	8	6	2	8	0	3	0	8	0
Wadra	7	5	7	6	7	1	0	1	3	1	6	5	3	1	5	1	0	4	9	0
West Azernet	10	7	10	10	10	3	5	8	0	10	10	10	9	1	10	0	10	3	9	0
Wogidie	16	13	14	15	14	8	4	10	11	14	8	15	11	0	15	0	5	3	13	0

Appendix J. Nu**mber of health facilities no stock out of drugs in the last 12 months by woreda**

Woreda Name	paracetamo	TT	Iron e tablet()	Folic acid	Vitamin A	ORS	ORT	ACT	Rx For Hook worm	Oral Polio	Penta Vaccine	Pnemo Vaccine	Measles	BCG	Cotrimoxa	Vitamin K	TTC eye oint	Chloroh exidane	Gentamicine	Amoxa	Rapid test
Adolarede	0	1	5	0	2	1	0	0	2	0	0	0	0	0	2	0	0	0	0	1	8
Alicho Worero	10	11	12	0	13	13	13	7	11	13	13	7	13	13	12	1	12	0	1	9	10
Arero	2	2	4	3	6	5	1	0	3	0	0	0	0	1	7	0	2	0	1	3	6
Banja	5	4	11	3	8	12	11	7	7	9	11	10	12	11	10	0	5	0	1	5	11
Bensa	8	3	13	8	15	10	10	6	8	3	3	2	3	3	11	0	9	1	0	4	9
Bona Zuriya	0	10	0	12	14	7	13	1	6	12	13	13	12	9	7	0	4	0	4	4	8
Borricha	10	3	15	9	19	14	13	10	11	3	3	3	2	2	12	0	9	3	2	5	12
Dara	17	0	8	10	18	17	17	7	15	1	1	1	1	1	16	0	17	1	4	10	7
Dhas	0	1	2	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
Dillo	2	3	4	4	5	5	1	3	5	1	1	1	1	1	5	0	4	2	0	3	4
Fegeta Lekuma	5	1	13	3	8	14	12	9	10	5	5	5	5	3	12	0	6	1	0	4	13
Girja	2	1	2	2	3	1	0	1	2	0	0	0	0	0	2	0	1	1	0	1	2
Guanga	0	3	5	0	3	6	8	4	6	3	3	3	3	3	8	0	1	1	0	0	8
Guanga Shekudad	0	2	4	3	4	7	6	6	2	1	1	1	1	1	6	0	1	0	0	0	6
Kefta Humera	4	1	9	4	6	5	5	9	7	1	1	1	1	1	5	0	6	4	0	0	6
Legambo	8	14	12	12	14	16	16	8	14	14	17	17	17	17	12	1	14	5	1	12	9
Loka Abaya	10	0	10	8	13	10	8	6	11	0	0	0	0	0	9	0	7	0	0	1	9

Odo Shakiso	4	2	9	8	9	10	4	4	3	2	2	2	2	1	6	1	1	0	0	4	9
Saba Bor	5	2	7	1	5	3	1	1	1	0	0	0	0	0	9	0	2	1	0	3	3
Saynt	0	11	9	9	13	14	8	4	7	11	10	11	11	10	12	0	7	1	0	0	12
Taltale	3	3	7	6	10	6	0	1	1	3	3	2	3	2	4	0	4	1	0	2	8
Tsegedie	5	0	11	7	9	7	1	9	8	0	0	0	0	0	8	0	6	2	1	5	7
Wadra	7	4	9	1	7	1	0	0	4	2	5	5	5	2	9	0	2	0	0	2	3
West Azernet	5	10	9	8	9	2	10	0	8	10	10	10	10	10	4	0	1	8	0	0	1
Wogidie	4	10	7	3	11	12	12	10	7	12	11	11	12	12	10	0	1	0	0	2	13

Appendix K. **Number of health posts no stock out of formats and supplies in the last 12 months by woreda**

Woreda Name	Monthly format for suppl	Request and Reposition format	Stock Record card	Bin Card	Internal Health post Report resupply Form	Health post monthly report and Re-supply Form of 12 months report	Chart booklet	Flip book	Poster(proper storage guideline)Daily and	Posters(Daily and weekly activity)	Poster(monthly activity)	Timer
Adolarede	1	1	0	0	0	0	1	1	1	0	0	0
Alicho Worero	5	6	3	7	0	7	11	10	8	1	12	1
Arero	7	4	0	1	1	2	3	4	2	2	5	0
Banja	6	5	3	11	4	5	11	5	4	1	4	4
Bensa	1	9	1	2	2	8	19	9	8	5	7	3
Bona Zuriya	10	10	8	12	11	13	12	11	11	0	3	4
Borricha	2	8	2	9	1	10	18	11	6	3	9	7
Dara	0	13	2	10	3	16	18	17	9	1	4	15
Dhas	2	0	0	0	1	1	0	3	2	1	3	0
Dillo	3	2	3	2	0	4	3	2	3	2	3	1
Fegeta Lekuma	10	13	4	8	2	12	12	6	8	2	9	0
Girja	1	2	1	1	2	3	2	1	1	1	2	1
Guanga	7	6	2	3	0	6	7	6	6	0	8	1
Guanga Shekudad	5	6	0	0	0	7	7	6	2	5	6	0
Kefta Humera	8	5	0	7	3	8	9	9	5	7	8	0
Legambo	14	12	4	12	11	14	15	12	16	16	17	0
Loka Abaya	7	7	3	5	0	10	12	5	8	0	2	8

Odo Shakiso	2	2	1	2	1	10	8	5	7	4	6	3
Saba Bor	5	3	2	1	0	0	5	0	1	0	2	3
Saynt	6	8	1	13	5	7	8	4	2	3	6	8
Taltale	3	4	2	1	3	10	5	3	5	4	6	2
Tsegedie	7	8	3	7	7	10	11	5	3	2	2	0
Wadra	6	4	1	0	3	7	5	6	3	1	1	0
West Azernet	0	9	2	1	1	0	9	6	1	0	10	0
Wogidie	9	13	2	3	5	8	12	8	10	4	12	0

Annex II- Qualitative Result Report

'One Finger Can't Wash the Face':

Perceptions & Use of MNCH Services in 25 Programme Woredas

1. Qualitative Result

1.1. Background Information

The qualitative baseline study utilized focus group discussions (FGD) and in-depth interviews to gather information from a standardized set of respondents in each of the 25 woredas (districts) selected for the first phase of CIFF programme implementation. A full set of data for each woreda consisted of 2 FGDs (one with "mothers and one with local Health Development Army (HDA)), and an in-depth interview with each of the following: a health extension worker (HEW), a local religious leader, the head of one of the woreda's health centres, and the head of the woreda health office. All six qualitative data files are available for 11 woredas; almost all the others had at least 4 or 5 files. A further 4 interviews with Hospital Directors were conducted in Adola Reda (Oromiya), Legambo (Amhara) and Tsegede (Tigray). In total, 136 qualitative data files were included in this analysis.

Although qualitative data collection concentrated on exploring the *demand side* of MNCH services (experiences and views of local communities), interviews with health providers and public health authorities also shed light on *supply side factors* such as functioning of management and delivery mechanisms, and explanations from frontline staff for some of the gaps noted in the quantitative assessment of MNCH programme readiness.

To complement the survey data, the qualitative analysis aimed to examine the study questions *(1) how do local actors perceive the quality of services provided at woreda level and (2) how does this interact with health-seeking behaviour and currently practiced MNCH behaviour?. The data has been analyzed in the conceptual frame work of three main themes quality, context and practices. Quality* was defined subjectively, meaning that we coded all comments about *perceived* quality of care by respondents, regardless of how well they matched objective classifications based on clinical evidence. Similarly, *Practices* encompassed all opinions and divergent views expressed on what MNCH related behaviours *should* be (norms) as well as specific examples of individuals' behaviours (reality). Finally, *Context* includes attributes of

woredas or communities (kebeles) that are not directly determined by health policy or levels of local knowledge and practices, but nonetheless influence access to, provision and use of services.

1.2. Quality Of MNCH Service:

Skills & Training

Interpersonal skills and the atmosphere engendered by facility staff proved very important in shaping community members' attitudes toward health services:

> *Privacy … they [women] say that many workers come in during the examination. They also said that there is disrespect from workers. (Woreda health officer, Amhara)*

From the community's perspective, quality was bound up with friendliness, location close to home, short waiting times, and ability to access as many services as possible during one appointment. With some exceptions, women praised HEW and the health post, and felt they were able to get their services without too much inconvenience. A few reported finding the health post closed or empty, but most reported being able to contact their local HEW when needed.

> *For example, the health post might be closed when HEWs have a meeting. [But] if the HEW are available in the kebele, we can get the service at any time (Mothers' FGD, Legambo)*
>
> *We always get HEWs if we go to the health post. If HEW not present, we call by using their mobile number or by going to their comes (Mothers' FGD, Wogedie)*
>
> *I prefer health professionals at health centres because HEW are not giving the services we want. They say 'we don't work Sundays' or 'we're tired now, come some other time' (HDA FGD, Guangua)*

Since proximity to home outweighed most other considerations when mothers and HDA members discussed quality, they tended to express concern over skills at health centres rather than health posts:

> *The last time somebody went to the health centre to correct fetal presentation, unfortunately she did not get a proper service and finally she got the service from the hospital. Now she does not want to go to the health centre" (Mothers' FGD, Legambo)*
>
> *In the health centre, the approach is not good. I went to the health centre to get family planning and their approach was not good. I couldn't communicate with them and they told me that there was no drug. Then I came back home without getting the service and I conceived against my will. Whenever I of that day, I feel sad, but in the health post, mothers are treated well (HDA FGD, Borricha).*

On the supply side, skills and training were dominant themes and appeared to preoccupy providers and administrators at all levels. In some interviews, requests for further training appeared opportunistic, with respondents taking advantage of the interview to make requests for future assistance. But there were also numerous examples of where skills were lacking and thus negatively affecting the ability of health staff to provide services at an adequate level of quality:

> *Training was given by selecting health posts. But our health post did not get the chance and we were not trained on delivery. We are working using the knowledge we gained from college and we are working with referral linkage. (HEW, Fegeta Lekuma)*

Skills are often lost when trained staff members move on, and are either not replaced or replaced by more junior and less qualified individuals:

> *At woreda level there is not training problem, but there is a problem related to training at health centre and health post levels. The problem is related to staff turnover. Trained staff may leave to other areas and again we recruit fresh professionals. (Woreda health officer, SNNPR)*

Health centre heads also complained that if only one or two individuals received specific training, they did not always transfer those skills to other colleagues. Finally, one HEW and one woreda health officer mentioned that their skills were not used to full capacity because they were being diverted to other activities, such as agricultural extension activities.

> *Health extension workers must be focused only on health activities, because here we are working on other activities, so it is better to work only on maternal and newborn health (HEW, Loka Abaya)*
>
> *For example, I am assigned to work also on agricultural activity, so it is difficult ... we are overburdened with different work (Woreda health office head, SNNPR)*

Budget allocation

The financial arrangements described varied across woredas, although almost all woreda health office heads reported freedom to determine how to spend their proportion of the overall woreda budget, based on an annual planning cycle. They then seemed to adopt one of two separate funding models for disbursing money to the health centers under their supervision. In the first, the woreda dictated the sums earmarked for MNCH activities, while in the second; they allocated a lump sum to each health centre and devolved decision making for how it should be used. Although the second approach gave greater flexibility to health centers, some health centre heads

interpreted this to mean there was no clear budget line for MNCH and they thus felt under pressure to allocate sufficient funds to fulfill certain policies (such as providing free services for pregnancy and newborn care):

Still now, there is no specific budget allocated for maternal and newborn health care at health centre level (Health centre head, Oromiya)

There is no money allocated for this purpose, but from our internal income we provided free service for children ... We don't know by percent, but whatever the cost, we are serving mothers free (Health centre head, Amhara)

I do not know why the woreda does not allocate money specifically ... due to our financial problems, mothers pay for some activities (Health centre head, SNNPR)

While most funding at health centre level came from the woreda health office, many centres supplemented their budget with internal cost recovery, such as charging fees for some laboratory services and medications (as mentioned above), although no respondent claimed to charge for any basic ANC, delivery or PNC care. Some health centres also received supplementary supplies directly from international and local NGO and donor organisations, e.g. UNICEF. External donor support was seen as desirable and woreda health offices and health centres worked to link with partner agencies where possible, but then suffered from sudden loss of supplies if support was withdrawn and no measures to maintain sustainability had been put into place:

Previously there was support for newborns, like soap, cloths, towels ... mothers are asking for these things so for the future, these things should be considered (Health centre head, SNNPR)

A HEW from Fegeta Lekuma described a similar situation where supplies provided by UNICEF in the past had all expired or been used, and the woreda had not made budgetary provision for those items, leading to shortages of drugs, gauze, soap and alcohol.

Complaints about lack of adequate financial and material resources emerged throughout interviews with providers and health systems authorities, and were raised by a few community members as well. Only a few of these comments were backed up with detailed examples of why the resources did not cover intended scope of work, and thus may represent attempts to transmit requests for future assistance through the interviews, as appeared to be the case with training.

<u>Supervision and Management</u>

The lines of communication and chain of command across levels of the health system were clear to all respondents. HEW reported to health centres, but could be supervised by health centre

staff, kebele authorities and occasionally woreda health officers. They generally welcomed regular supervision and guidance.

When they visit the health post, they can check registration books and provide feedback on observed weaknesses and strengths (HEW, Tsegede)

Health centres themselves received supervision from the woreda and zonal health offices, as well as from hospital (if nearby) on more technical and clinical issues. The frequency and quality of supervision appeared very mixed, however. Some HEW received daily phone calls from their responsible health centres, other reported weekly, fortnightly or even monthly supervision visits. Health centres complained that they did not have the time or access to vehicles to conduct supervision as often as planned:

We also face a shortage of health workers to do the supportive supervision since the number of kebeles is numerous. ... We have only one motorcycle for ten kebeles (Health centre head, SNNPR)

Similar concerns were raised by woreda health offices. Several respondents from woreda level complained that they did not conduct supervision as often as planned. There also appeared to be difficulties in routine reporting, and several health centre heads stated that they received reports that were incomplete, inaccurately filled out, or in some cases, potentially falsified. While some of these problems could be mitigated if supervision were implemented throughout the whole health system as planned, there also appeared to be difficulties with reports completed by HEW because they were available only in English.

The quality of reporting of MNCH related information is poor. An example is when we give the same form in English and Amharic and we see the evidence [how the forms have been filled out], it is as far as sun and earth. (Health centre head, SNNPR)

Standardised supervision templates had been introduced in some woredas in order to improve management. For example, checklists were used as tools to help supervisors remember to cover all the key areas during a supervision visit. In some cases, checklists did appear to make data collection more routine and professional:

We use checklists for completeness, timeliness and quality of reports [from health centres]. If we face a problem we can communicate with the institution's HMIS focal person. Sometimes if necessary, we can cross check with a tally sheet and register book during supervision. (Woreda health officer, Tigray)

The woreda expert has a checklist for when he goes to the kebele and supervises not only health-related issues but also the teaching sector and agricultural sector issues (Woreda health officer, Oromiya)

Effective use of checklists in the same woreda as the quote above was confirmed by a health centre head:

The supervision is also good, they come from the zone and UNICEF with checklists. .. We also have checklists to supervise HEW. ... We supervise based on the checklist and we give support for them and if the HEWs have a problem we discuss in the health centre and solve the problem. If it is beyond our capacity, we report to the woreda to support us. (Health centre head, Oromiya)

Unfortunately, the HEW interviewed from the same woreda did not feel the supervisory structure was as successful as her superiors did:

Yes, I get supervision sometimes. Once in a month but it has no sustainability. Sometimes they interrupt the supervision. The kebele supervisor comes sometimes and zonal supervisors also come occasionally. ... It is not satisfactory because to improve our work we need regular supervision. (HEW, Oromiya)

In other woredas, checklists had been introduced for supervision but were not seen to lead to consultation, constructive feedback, or improvements. In some settings, supervision – with or without checklists – were described as bureaucratic exercises with little result:

There is supervision supported by checklists, but it is not a "problem solver" and is limited due to lack of budget. (Woreda health officer, Amhara)

The woreda gives us support every three months and the zone gives us support every six months. The bad thing is they don't intervene what to do, they don't solve our problems. (Health centre head, Amhara).

Some respondents felt they received adequate supervision within their woredas; other respondents did not mention it as an important issue. Quality and frequency of supervision therefore appeared patchy, and seemed to depend on local resources and vertical relationships across the system. Even HDA members expressed different view on the effectiveness of their management by HEW:

We are working from high to low level. For example, sometimes if there are children with nutritional problems, we communicate with the health extension workers. ... There is no

problem when we are working together ... starting from kebele leaders to lower levels (HDA FGD, Legambo)

If we observe problems, we teach and inform the problem to the HEW. We submit reports every fifteen days and communicate through mobile telephones (HDA FGD, Borricha)

We don't have a close relationship and we only communicate with them when there is a message for the community. ... It would be nice to have good communication with them, but they are busy. (HDA FGD, Loka Abaya)

Logistics and Supplies

Within the main theme of Quality, availability of supplies featured as the most frequently mentioned determinant of both community perceptions of whether local services were of good quality, and of providers' own sense of their effectiveness in service delivery. Although related to budget allocation and availability of resources more generally, specific medical, material, and pharmaceutical stock-outs were prioritised concerns across the health system in almost all sampled woredas.

At health post level, community members pointed to the lack of equipment for provision of MNCH services beyond vaccination, malaria treatment, and some ANC and infant growth monitoring:

We couldn't get full examination except for malaria and family planning here in the health post (Mothers' FGD, Guangua)

Usually it is open, but there is no medication in the health post. We don't have hope on this health post. It is simply a building (Mothers' FGD, Tsegede)

Health extension worked confirmed lack of supplies at their health posts and lamented the fact that this affected their work and also their reputation within the community:

The health post equipment are not fulfilled, so when the community comes for service, they see it and criticise us, 'why you work like this?' Thus to remove this [negative] influence, sometimes we work outside the health post (HEW, Wogedie)

Shortages of supplies like gloves, delivery kit, family cards, stationary etc. ... supplies and materials have been requested, but they didn't provide us with what we need (Health extension worker, Bensa).

The HEW quoted above went on to state that she has used money from her own pocket to meet shortfalls in supply. In other settings, the health post was well equipped but staff were not familiar with some of the devices provided:

> *The health post has delivery materials like a delivery couch, autoclave, but the HEWs do not know how to operate them. The health post also has weight scales (HEW, Seba Boru)*

However, registration books, gloves, pens, chairs, tables, and some drugs such as antimalarials, oral contraceptives, antibiotics and even oral rehydration therapy were reported as absence from that same health post.

Community members believed that health centres were usually better supplied than health posts, and that was one of the criteria cited for deciding to seek MNCH (including delivery care) at health centres, despite their distance from many women's homes and reputation for unfriendliness, long waiting times, and male health workers. Health centre staff were themselves keenly aware of the regular lack of supplies, and gave examples of running out of iron and zinc, antibiotics, delivery kits, and more fundamental logistical problems including power outtages and no running water. The impact of these weaknesses on health-seeking behaviour worried health centre managers:

> *Once they come to the health facility, they need to have full investigation. For example, it is a must to do Rh factor [tests] for pregnant women, but we do not have a service for it because there is no light. ... Since there is no water here in the health centres, they are not happy with the service... (Health centre head, Amhara)*

Woreda health office heads acknowledged problems with maintaining timely supplies to health centres, but did not make clear what the reasons were behind supply chain bottlenecks, or blamed zonal and regional health bureaus for lack of action:

> *... no supply of the solutions, ergometrine, personal protective equipment ... (Woreda health office head, Oromiya)*
>
> *For example, two health centres became functional last year but still now, furniture are not supplied (Woreda health office head, Oromiya)*
>
> *They need to avail supplies which are not managed by the woreda level. For example, there is only one delivery couch and there is no delivery set, but the health centre is established two years ago. So they need to fulfil supplies which are not managed by the woreda (Woreda health office head, Amhara)*

Even in the few interviews with hospital directors, the issue of equipment and supplies was raised as a significant barrier to availability of good MNCH care:

There are health institutions everywhere. The availability of health institutions does not indicate availability of the services. Take our hospital, the equipment and wards are not enough to provide quality services (Hospital interview #3)

We have no adequate refrigerator, heater or incubator (Hospital interview #1)

There were some exceptions, however. At least four woreda health office heads and three health centre heads reported no difficulties with supplies, including drugs, which in these cases were distributed fairly efficiently through the PFSA (national body responsible for delivery of all medical supplies including medicines). In one case, despite not having its own resources, a health centre was able to procure necessary equipment from neighboring facilities:

Our health centre is new and did not start to function by its own budget. We can obtain equipment, medications and supplies from other nearby health institutions and woreda's health office (Health centre head, Tigray)

Motivation

As expected, frontline staff reported good levels of motivation and emphasized their strong commitment to improving the health of communities and sense of personal satisfaction.

If one mother dies, I feel she is that she is our mother (HEW, Guangua)

Descriptions of personal dedication were often juxtaposed with examples of working in difficult circumstances. Health extension workers described high workloads, poor accommodation, and difficult conditions, particularly related to their outreach activities:

We travel, on foot, long distance to give this service, so we are at risk, especially from drunk people who sometimes try to attack us (HEW, Borbore)

One health extension worker admitted to feeling demotivated at times, and tired of travelling long distances between households:

Sometimes I do not have interest in moving for long periods of time in the community (HEW, Teltele)

In terms of community members' motivation to use services, there was general agreement that willingness to deliver in facilities was steadily increasing. While this was seen to be a positive development, there were also some concerns that a rapid rise in health-seeking at MNCH facilities could potentially overstretch existing capacity and compromise quality:

Yes, the pregnant women do have good health seeking behaviour. Their seeking behaviour is alarmingly increasing over time, e.g. the number of institutional deliveries is increasing rapidly when we compare with the previous year. Even it is so difficult to cover the health centre delivery by two midwives (Woreda health office head, Tigray)

Several respondents mentioned that there were some forms of punishment for women who did not choose to deliver in facilities, although no details were given. Although punishments came up in only 2-3 interviews, these came from different types of respondents in different woredas, suggesting that there may be some providers or health administrators who are becoming over-zealous in their attempts to change health-seeking behaviour:

All mothers go to deliver at health institutions. There is punishment if they don't. (Religious leader, Fegeta Lekuma)

If a woman delivers at home, there is punishment by the community members assigned for this purpose (Woreda health office head, Tigray).

1.3. Local Practices on MNCH Services:

Traditional Beliefs

Considerable heterogeneity emerged in the findings on traditional MNCH practices, particularly related to traditions surrounding initiation and timing of breastfeeding (including whether colostrum is given or discarded), infant bathing, and umbilical cord care. Adoption of vaccination, however, appeared universal and was widely valued. All respondent types mentioned women's willingness to take infants for vaccination; any barriers to this related to circumstances beyond mothers' control such as distance or ability to arrange transport.

Immunization is important for both children and mothers. ... I bore one child with a great problem without vaccination. But now I got vaccination from the pregnancy to the birth. After birth, the child has got immunization up to 9 months of age and I have a 1-year and 8 months' old child, and he started walking at this age. The one who didn't get immunization couldn't walk until 3 years of age. (Mothers' FGD, Guangua)

Even my child stands [on his own] at 8 months. The vaccine gives him strength! (Mothers' FGD, Sayint)

Yet questions about breastfeeding yielded variation even within the same woredas and often within the same FGDs, with different mothers or HDA members describing different practices. While breastfeeding was widespread, its use was tempered by fears that colostrum was harmful to a baby's digestion (in which case breastfeeding began up to 3 days after birth, until which babies were fed butter or tea), and supplementation earlier than the recommended 6 months among mothers who were too busy to continue breastfeeding exclusively, or feared breast milk was not longer adequate nutrition for a growing infant:

When we deliver at home, they say to remove the first milk ... because it becomes a cause of diarrhea and abdominal pain. ... For 3 days the newborn gets abdominal pain due to the first milk (HDA FGD, Guagusa Shekudad)

The first milk has to be removed ... because it is not good as we hear from our ancestors. ... It is not good for the child as we heard from our family (Mothers' FGD, Arero)

Colostrum should be poured/ discharged because it is frozen (HDA FGD, Wegedie)

Nothing other than breast milk was given for the newborn up to six months' of age. .. Some others said we give cows' milk boiled with sugar after five months (HDA FGD, Adola Rede)

Still there is common feeding practice which is giving avocado to the baby at three months. As a result, [there is] sometimes diarrheal disease (HDA FGD, Dara)

Many respondents knew the "right" answer and could repeat advice received from HEW and HDA members. Some may have been reluctant to admit diverging from recommended practice during the FGDs, particularly if other respondents were expressing positive views about colostrum and exclusive breastfeeding. But enough women (including providers) did admit to maintaining traditional beliefs on infant feeding to suggest that these were fairly common across the regions.

The HEW teaches us not to give the baby anything other than breast milk until they get to six months, but I gave to my daughter at four months (Mothers' FGD, Fegeta Lekuma)

In one woreda, there appeared to be confusion regarding providers' recommendations regarding colostrum. It is unclear from the quote below whether the woman was incorrectly remembering what she had heard, or whether health centre staffs were indeed recommending discarding colostrum. Data from other interviews in this woreda did not help clarify this point.

I know mothers who gave birth at a health institution, and the health professionals told her to wash her breast, to remove the first milk completely, and then to give her breast to the

newborn. I think it gives the newborn problems, so that we are doing the same thing here like the health professionals did (washing breast and completely removing the first milk ...) I think the first milk has no benefit, rather it gives the newborn abdominal problems. (Mothers' FGD, Sayint)

Cord care, however, seems to have mainly shifted away from traditional practices such as applying butter or mud or other substances to promote healing or prevent dryness. Most FGD participants agreed that current practice recommended applying nothing to the cord or allowing antiseptic to be substituted for traditional substances by clinicians.

In the past, TBA applies butter to prevent dryness of the cord after cutting and tying it. But the HEW did not apply anything to it (Mothers' FGD, Adola Reda)

In some cases, however, modern and traditional cord care co-existed, with respondents describing two parallel systems: delivery in a health centre would result in the cord being left alone or disinfected while delivery at home with relatives or local women attending might lead to butter being applied.

Traditional birth attendants apply oil or butter but HEW apply nothing to the cord (HDA FGD, Borbore)

Perhaps one of the most intractable traditional practices remains delivery in the home. Although none of the qualitative interviews provided a reliable breakdown of local births by location, the data make clear that facility-based deliveries are not increasing as quickly as hoped and expected, and this is partly due to belief that childbirth was a natural, healthy event:

For example, during labour, there is cultural thinking that St. Mary is present in the home. This means that they think delivery is faster at home. The health professionals are not solving this problem. The professionals are not giving the important education for the community. (Health Centre Head, Oromiya)

Indeed, some women who attended ANC and were told their pregnancies were progressing normally took this as a sign that they could safely deliver at home:

During the antenatal visit, they said to her that you are fine, so she doesn't come for delivery (Woreda Health Office Head, Amhara)

Women also prefer the comfort of their own home, and do not like care by unknown providers, particularly if they are male.

We want to get the service only if it is in the kebele or in the health facility [post?] but if it is possible, we want the service in the home because it helps the health of the child and mother (Mothers' FGD, Dilo)

Most health professionals are male ... and there is no privacy so that this may hinder mothers from giving birth at a health institution (Religious leader, Legambo)

There are traditional cultural beliefs. When we give birth at home, others (mothers and neighbours) may help the woman, like by palpating her abdomen so that the labour is not hard. But at the health facility, nobody helps the mother while she is in labour. So we believe that the labour is hard at the health facility. (Mothers' FGD, Sayint)

On the other hand, as mentioned in the section on quality, women were cognisant that lifesaving equipment was available in some health centres and this could improve their delivery care:

We are receiving different services currently. During previous periods, our mothers used to give birth at home. This time we went to the health facility and they gave us injections, tablets, and glucose, which gives us strength during labour (Mothers' FGD, Alich Arero)

When we deliver at home, HIV might be transmitted from mother to child. So to prevent this we can deliver at a health centre ... After birth, injection is given for children and for the mother to prevent bleeding. (Mothers' FGD, Guangua)

These differences in perception of modern delivery care may reflect varying levels of awareness about potential complications and what interventions during pregnancy can prevent severe morbidity or death in cases of complication. While it is difficult to assess why some women appeared to be more trusting of modern medical technology while others preferred traditional practices such as fetal re-alignment (which can be dangerous in itself if the person performing the procedure is overly vigorous or unskilled in identifying fetal parts), some possible determinants could be extent of exposure to health education messages, positive relationships with local HEW, or hearing successful stories from friends and family members who delivered in health centers or hospitals. Certainly some mothers themselves suggested that HEW and a general rise in awareness levels were likely to change practices over time:

... the main reason [for home delivery] is awareness problems. There are some mothers who didn't change their cultural thoughts on this services, saying 'our earlier practice is good and we don't want to leave them.' ... after we get education from HEW, we are taking such services from health facilities and we are changed. (Mothers' FGD, Legambo)

Religious Influence

Throughout the interviews, there was general agreement that attitudes among religious authorities had changed over time. The view was that while they had previously preached against abortion, family planning, and either ignored issues related to pregnancy and delivery care or offered holy water and prayer, now religious leaders were becoming more proactive in promoting healthy behavior and modern forms of treatment.

> *There were challenges at the beginning. But now there is a tea-coffee ceremony. There are different religious leaders who contribute a lot. For example, one man can marry 5 or 6 women in the Islamic religion. But now they marry [them] after VCT! (Health centre head, Kafta Humera)*

Most religious leaders who were interviewed confirmed their support for the work of HEW and other providers. A few claimed to promote active use of MNCH services:

> *In the past, in our religion, what was said was 'what is medicine?' God will separate what he creates [into health and unhealthy]. ... What the religion now teaches is to make a child grow with care and not be harked, to make the mother get pregnancy and postnatal care (Religious leader, Fegata Lekuma]*
>
> *Religious leaders are responsible for providing education, whether Muslim or Orthodox, because it is an issue of saving the mothers and newborns. (Religious Leader, Tsegede).*
>
> *We don't say don't go to health centers, we even want to help build good roads! (Religious leader, Arero)*

Others, however, remained lukewarm about the use of health services, expressing some reservations and maintaining their role in encouraging women to adopt spiritual care, although in some cases they suggested this could be integrated with clinical options:

> *We don't teach people to go to the health centre, because the bible didn't say anything about it. At delivery, we did say to go to the health centre. But we never say we will [definitely] do that. After they deliver, they are going to take holy water on the 5th, 7th, and 10th day. Before that, they can't rejoin communion. As for the neonates, they can't take food before baptisms, and we don't say they should stay away from vaccines before baptism (Religious leader, Guagusa Shlekudade).*

The religious leaders interviewed were most positive about the benefits of family planning and the importance of nurturing pregnant women by ensuring they received adequate food and were not overly burdened with physical labour.

According to our religious view, we have a good view. On family planning and pregnancy, we gave them information to use it. It is positive to use family planning because the community has seen the problem they face from large sized families (Religious leader, Wadera)

We should care for mothers and should reduce their housework as well as field work during pregnancy (Religious leader, Guangua)

Their opinions on facility based delivery or receipt of antenatal and postnatal care appeared less clearly defined or specific; while generally supportive, with a few exuberant exceptions, religious leaders did not consider MNCH a topic requiring much of their guidance:

I give education about immunization ... the importance of pregnancy care in between my religious teachings ... but so far I haven't thought about pregnancy care, postnatal care, delivery care and newborn care in special programs" (Religious leader, Loka Abaya)

At least one Health Centre Head believed that some local religious leaders were discouraging delivery in facilities, but did not give further details.

1.4. Context of MNCH Service:

Geography & Transport

Difficulty in obtaining transportation was a commonly mentioned barrier to use of MNCH services, particularly in communities that were remote, scattered, mobile or located near a river that regularly flooded. Information provided on the availability of ambulances provides a mixed picture, with some contradictory statements within the same woreda.

In Odo Shakiso, for example, the FGD with HDA members stated that HEWs call an ambulance when a woman goes into labour or suffers an emergency. During the FGD with mothers', respondents said there was no ambulance available to them. It is possible that the FGD with mothers was conducted in a more remote kebele than that with HDA members or that those participants were simply unaware of the ambulance service, but the discrepancy may suggest that information about available transport may not be widely disseminated, or that even within the same woreda, ambulance coverage is inconsistent.

In some places, unreliable mobile phone connectivity limited HEWs' ability to call an ambulance when required, in others; the ambulance is unable to reach all the locations within the woreda due to geographical constraints. Furthermore, not all woredas allocated sufficient resources for fuel or maintenance of their vehicles.

We have one car but it is not functional currently, and also the ambulance is not functional. Even when it is functional, it is not enough to reach all the sites (Woreda health office head, Oromiya)

Some woredas identified solutions to challenges related to geography and transport such as allocating part of their budget to fuel and repair costs once they realized these were not provided along with the ambulance, or by mobilizing community members to help women reach locations accessible to the ambulance:

> *After the ambulance service started there was improvement. … but at this time, the ambulance has faced a problem for the last three months. We have planned for 2006 to resolve the problem of the ambulance when the budget is allocated. (Health centre head, Oromiya)*
>
> *But we solved it … the community carries pregnant mothers up to the river area and we take ambulance and take to the health centre or hospital for delivery (Woreda health officer, Oromiya).*

Even where an ambulance is available, however, its use appears to be limited to taking women to a health centre or hospital for delivery or in the event of an emergency. Thus routine visits to health facilities for ANC or PNC require walking long distances or paying for alternative means of transport, such as by motorbike, which was quoted as costing roughly 300-500 birr depending on distance. These were seen as expensive options that discouraged frequent visits to health centers, further strengthening women's preference for delivery in health posts, as discussed previously.

While women expressed a strong preference for having the option to deliver in health posts, there was considerable variation in whether this was encouraged by local health authorities. In some cases, there appeared to be interest in strengthening health posts so that they could cater for deliveries, while in others this was seen as a last resort but an inevitability given the long distances between communities and facilities and the inability of many women to accurately predict their delivery date.

The training on safe and clean delivery should be focused on and given repeatedly to all workers up to HEWs (Woreda health office head, Oromiya)

After the woreda gave delivery training for … HEWs, especially in the areas where there is no health centre and it is inaccessible for transportation, the community started to come and use the service (Woreda health office head, Oromiya)

Many health extension workers agreed with local women that delivery in health posts should be an option, but admitted they were not equipped to provide it:

We were not trained on delivery. We are working by using the knowlesge from what we gained from college. We are working with referral linkage. We didn't give delivery service in the health post. There is no safe condition, no light and no water" (Health extension worker, Fegeta Lekuma).

Due to the absence of delivery materials, I do not provide delivery care. I refer them to the health centre (HEW, Teltele)

Staffing Levels

Similar to problems of supplies, maintaining adequate levels of health staff proved difficult. Many health centers compared their staffing levels to those recommended by the Federal Ministry of Health, while others compared numbers of staff to their client load:

We require 2 B.Sc. health officers, we have only one. We require 3 midwives, we have only two. [But] we have the standard number of nurses (Health centre head, Tigray)

We have enough health professionals based on the standard. ... But when we compare it with the population, we have a shortage of manpower because we have high flow of patients and this creates problems for quality. For example, in the last year, we planned to see 2998 patients be [actually] saw 8566 patients (Health centre head, Oromiya)

Lack of staff did not go unnoticed by local communities, and some frustration was expressed that although the government was pushing very hard to encourage uptake of MNCH services, particularly facility based delivery, there did not appear to be adequate commitment to allocation of staff:

The delivery service is given at health centre level but 'one finger can't wash a face'! By saying this, I want to tell you there is only one professional here, so, if 10 pregnant mothers come to delivery, imagine what would happen to them. Why doesn't the government assign

more staff here? Is it due to budget or shortage of educated people? (HDA FGD, Loka Abaya)

In rural or remote areas, staff retention was highlighted as a major problem:

People leave. Especially trained manpower will leave. On average, they stay 5 months, 7 months – maximum one year. They are leaving because our woreda is a little far from town (Woreda health office head, Amhara)

Several woreda health office heads discussed the lure of larger towns for qualified health workers, and pointed out that a lack of career development opportunities discouraged longer term contracts. On the other hand, this did not appear to be a problem in other woredas, where it was reported that HEW and/or health centre staff had been in post for significant periods of time. Interviews did not elucidate whether they realistically expected to be able to request and receive additional staff members or whether they believed the problem to lie in the national supply of qualified health professionals.

Socio Economic & Demographic Profile

Poverty, lack of education and unequal gender relations were all mentioned as barriers to uptake of modern MNCH services, although none with great consistency or emphasis. Religious leaders in particular seemed concerned about women's role in the household and their husbands' disproportionate decision making power, and HDA members also described women's extensive responsibilities in the home as barriers to their use of services and more broadly, to their achievement of optimal health.

There is a nutritional bias in our community. Important foods like butter, meat and other foods are assumed to be for the husband. The children and women eat the remainder of the husband's food (Religious leader, Kafta Humera)

The last decision – the final say [on seeking services] – is left for husbands (Religious Leader, Legambo).

At least one HDA member listed multiple examples of how women's position remained undervalued and detrimental to their health, demonstrating quite nuanced understanding of relationship between maternal health and broader social determinants across a woman's life course:

For those women who married early, they face communication of stool and urine during delivery [fistula]. As a result, for the next time, she may not delivery. Such early marriage

takes place hidden. ... in Tigray region, the women are not allowed to eat egg, meat, and other animal products ... But the males eat and drink everything and become strong. Additional problems are forced sex and abduction (HDA FGD, Tsegede)

Education was perceived to be a determinant of uptake of new health technologies and motivation to use services. Providers often conflated levels of "awareness" with educational achievement, although participation in the HDA 1-5 clusters was also reported to be a determinant of both "awareness" and service use. Indeed, "awareness" appeared to reflect *acceptance* of health messages and advice rather than a simple acknowledgement of what was being promoted through public health channels:

[Use of services is low] in our community among pregnant mothers, except few like government employees, some civilized mothers ... (Religious leader, Wogedie)

[Those] mothers who have awareness and focal persons of 1-to-5 bonds [HDA] and [participants in the] mothers' forums have the willingness to come and delivery in the health centre (Health centre head, SNNPR)

Respondents recognized that poverty affected health service use through several routes. First, lack of money could directly reduce use of services where there were user fees or transport costs.

We paid [for transport] by selling our cow for the motorcycle (Mothers' FGD, Arero)

When we went to hospital, they forced us to buy gloves and pay 50Birr for the check-up (Mothers' FGD, Bensa)

Second, poorer households often relied more heavily on farming and women had even less time to attend facilities while juggling both their household and agricultural responsibilities. Several respondents singled out "farmers" as the least likely to receive MNCH care, due to a combination of work responsibilities and tendency to be less well educated and thus less "aware" and receptive to health promotion advice.

Sometimes we are busy at home, and we give priority for our homework. Due to this, we may miss some appointments (Mothers' FGD, Dara)

Farmers know the pregnancy of mothers but do not care to take follow-up [treatment] by going to the health centre (HDA FGD, Sayint)

Farmers do no to health institutions for delivery if they are healthy (Religious leader, Wogedie)

CONCLUSIONS

Drawing across the main themes and subthemes presented below, the following concluding observations can be made.

1. **Some health education messages have been taken up and changed local practice more quickly than others**

There appeared to be universal acceptance of and support for vaccination. Community members' responses to initial questions about availability and uptake of services almost always featured vaccination, which was seen to be a core component of MNCH. Interestingly, some health extension workers seem to be using the metaphor of immunization to try to encourage uptake of other health promotion messages. For example, some women who supported giving colostrum to newborns likened its protective qualities to "natural vaccination". Other women described colostrum as means to strengthen babies' response to subsequent vaccines.

The unquestioned support for vaccination suggests that while communities are amenable to modern health technologies, some behaviors will be more readily adopted than others. Referring to how widespread immunization has become could be used as an "entry point" to encourage change in other areas, such as proactive use of antenatal and postnatal care and planning for delivery in facilities, or attempts to dissuade mothers from maintaining harmful practices that are still fairly common.

Other modern health-seeking behaviours are being taken up more slowly, with greater variation across woredas. There was greater heterogeneity in reports of umbilical cord care, breastfeeding norms, and whether or not colostrum continued to be discarded. In some transcripts, there seemed to be some confusion regarding what providers were themselves recommending, while in other cases, respondents differentiated delivery practices found in health facilities from those used in home births, but accepted these as different approaches rather than judging any one to be superior to another.

Women also appear to respond well to attempts to integrate modern health practice with traditional rituals. In at least 4 woredas, respondents said that providing a tea or coffee ceremony as part of delivery services or as a means to bring women together for health education sessions significantly improved uptake of services:

When a woman is in labour, they [family members] make coffee and something like that, but uf she delivers at health institutions, they may not get such a ceremony. … Nowadays we tried

to start a coffee ceremony and mothers started to come for delivery. (Health extension worker, Banja)

2. **Use of MNCH services is increasing, reflecting the rise of MNCH on the political agenda and concomitant budget commitments**

There was broad agreement that MNCH had become prioritized at all levels, leading to increases in awareness, service use, and inclusion into programmes of work. Nowhere was it reported that use of services had decreased, and delivery in facilities was singled out for its steady rise:

Nowadays health care seeking trends are increasing, cultural barriers are now reducing" (Health centre head, Amhara).

Nonetheless, institutional deliveries significantly lagged behind family planning and antenatal care use, and often remained stubbornly low even after introduction of ambulances or health promotion campaigns. While some providers tended to blame "awareness" and to see the solution to be further effort by the HDA and HEW to educate community members, community members themselves mentioned wider socio-cultural issues such as unequal gender relations, fees for some services and for transport to the facilities when ambulances could not be obtained, and the opportunity costs of leaving work and the household.

While specific budget lines were not always allocated to MNCH activities, most woreda health offices and health centers believed that a majority of financial resources were used to deliver MNCH services, and that this proportion was going up over time. Many respondents estimated that between 5o-70% of their annual budget was spent on delivering maternal and newborn care; the lowest quoted proportion was 20%.

3. **Broader mechanisms to translate programme readiness into sustainable system are not functioning well, compromising quality of available services**

Many respondents expressed frustration that while the government actively promoted modern MNCH care, the requisite supplies and infrastructure were not there to support the system as a whole. Absence of supplies, inadequate staffing, difficulties in obtaining drugs from higher levels, and inconsistent supervision from above were all mentioned as barriers to provision of high quality services at each level of the health system. These weaknesses were then noticed by community members, confirming the view that accessing facilities was not worth the costs and effort required, or leading to facilities having a poor local reputation.

While some system challenges are deep-rooted and require long term solutions, such as increasing the national supply of trained health professionals, strengthening the PFSA drug and supply distribution system, and building basic infrastructure (roads, internet and mobile phone coverage), other challenges that appear quite trivial can have serious repercussions. For example, several woreda health office and health centre heads mentioned that they received poor reports from HEW because the forms were available only in English and were difficult to interpret by frontline staff. This added a supervisory burden as HEW managers had to find other ways to establish what was going on in health posts and the community, while HEW became frustrated that supervision centre around data collection rather than more constructive feedback and interaction with them. Unlike some of the other issues related to health system weaknesses, provision of reporting formats in local languages should be a relatively easy and low-cost activity to prioritize.

4. **Good communication across different levels of the health system can improve quality even in the absence of adequate financial and material resources**

Those woredas that reported adequate supplies or few difficulties with staffing levels also appeared to be those that described frequent communication and positive relationships between the different levels of health providers and public health offices.

A few woredas appeared exceptional in this regard, with all respondents reporting good working relationships with those they supervised and their superiors. Supervision and supply flow appeared to be lesser barriers, and while this could be coincidence, it could also be a result of routine information sharing and joint planning:

> *There are enough health professionals for supervision. We have 5 kebeles and for each kebele health professionals are assigned through different departments (Health centre head, Amhara woreda #2)*

Interestingly, in the woreda profiled above, the reportedly open communication channels reached all the way down the system into the community. The HDA members described working well with the HEW, and HEW also felt adequately supervised. One of the health centre's head mentioned that they organize regular community based discussions, to which religious leaders and others are invited, and food prepared for pregnant women so that they will come to discuss birth planning. The woreda health office head also talked about regular consultation with community members, including requesting feedback from women who delivered in the facilities.

The religious leader interviewed there also appeared more engaged and proactive, and also felt a duty to participate in monitoring the quality of services being offered to his community:

> *We all need to do more; all responsible bodies need to coordinate, follow up, and give attention to the issue. Additionally, the health facilities need to be evaluated. … I am not sure whether the health facilities give proper maternal and newborn care. (Religious leader, Amhara woreda #2)*

On the other hand, in other woredas there appeared to be a breakdown in communication at different levels, which made management structure less supportive, hampered the ability to avail supplies on time, and de-motivated staff. Another woreda, also in Amhara, differed notably from the previous example:

> *Supervision should be weekly, but often is monthly. … There is no follow-up with data analysis and problem solving (Woreda health office head, Amhara woreda #5)*
>
> *The last time we went to the health centre was to get treatment of our neighbors' daughter. However, they left us without giving treatment. … After this, we took her to a private health facility (HDA FGD, Amhara woreda #5)*
>
> *We did not get the health extension workers last month. We came two times in a day but they were not present. Finally we go to the ---- health centre (Mother's FGD, Amhara woreda #5)*

There will be many factors that work together to create a particular health service profile in any given woreda. However, during analysis, comparing the data from all respondents within woredas to build up a picture of care in the locality did identify a continuum at the aggregate level, as demonstrated by the above examples from a high-functioning and a low-functioning woreda. Ease of communication and cooperative vertical working relationships seemed to help engender a supportive working environment in which things got done more easily.

5. Local problem solving using available resources overcomes many challenges as they emerge

Similar to levels of internal communication, a woreda's capacity to identify and implement local solutions (internal to the PHCU) to emerging problems also seemed to make a big difference to provision good quality services and improved system functioning. When confronted with challenges such as broken vehicles, inadequate supplies or lack of budget lines for specific activities, many woreda-level respondents criticised the zonal or regional health bureaus. A handful of woredas, however, described how they worked to address their problems on their own. Although these were outliers in the dataset, they demonstrate that it is possible for some

problems to be addressed without injection of external resources or expertise. Most local solutions relied on careful budgeting, strategic planning and liaising with community members:

> *We are not giving full service due to the absence of light, laboratory, so we were referring cases to the hospital. But now to solve this problem, we are buying a generator and moving to meet our plan. (Health centre head, Amhara)*
>
> *Our government gives us an ambulance in our area. But it is one ambulance which cannot cover the service demand in our area. We the priests prepare a traditional bed and carry the woman by mobilizing the community during emergency and labour" (Religious leader, Amhara)*
>
> *Screening for danger signs in pregnancy is done by health extension workers and also some community members who have been trained properly and have experience. There are volunteers who register pregnant mothers and educate them on the dangers of home delivery (Woreda health office head, Tigray).*

The woredas who take the initiative to try to improve the quality of their services despite having few available resources and no additional assistance are likely to be those where key staff have both good strategic planning and creative thinking skills. Examples could be shared with other woredas and support given for improved problem solving. In the long term, however, wider systems need to be strengthened for sustained quality of MNCH care.