



**ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCE
SCHOOL OF PUBLIC HEALTH**

**Assessment of the Implementation of Focused Antenatal Care in
public health Centers in Addis Ababa, Ethiopia**

By

ASTER BERHE (B.Sc)

Thesis Submitted To Addis Ababa University School of Graduate
Studies in Partial Fulfillment of the Requirements for the Degree of
Masters of Public Health

Addis Ababa, Ethiopia
June, 2014

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Abbreviations and Acronyms

AARHB	Addis Ababa Regional Health Bureau
ANC	Antenatal care
EDHS	Ethiopian Demographic and Health Survey
FANC	Focus Ante Natal Care
FHB	Fetal Heart Beat
FMOH	Federal Ministry of Health
FP	Family Planning
HC	Health Center
HCP	Health Care Provider
HIV/AIDS	Human Immuno Deficiency Virus/Acquired Immuno Deficiency Syndrome
HO	Health Officer
HSDP IV	Health Sector Development Program IV
ICPD	International Conference on Population and Development
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
PMTCT	Prevention of Mother to Child Transmission
TT	Tetanus Toxoid
V1	Visit one
V2	Visit Two
V3	Visit Three
V4	Visit Four
WHO	World Health Organization

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Abstract

Background- Antenatal care (ANC) is a widely used strategy to improve the health of pregnant women and to encourage skilled care during childbirth. In 2007, the Ministry of Health of Ethiopia developed a national adaptation plan based on the new model (Focused Antenatal care) of the World Health Organization (WHO). Although antenatal services are well utilized in Addis Ababa (100% first visit coverage), there are gaps in full implementation of all components of Focused antenatal care. Currently, there are limited studies on the implementation of Focused antenatal care in Ethiopia including in the study area.

Objective- To assess the implementation of Focused Antenatal Care in public health centers of Addis Ababa.

Methodology- Facility based cross sectional study using quantitative supplemented with qualitative data collection methods were conducted from July to August 2013. Eight hundred Sixteen sessions of Antenatal care were observed in ten health centers. Simple random and purposive sampling techniques were used for quantitative and qualitative components of the study respectively. A pretested semi structured interview guide and structured checklist was used to collect data. Data were entered with EPI-info version 3.5.1 and cleaned with, analyzed by SPSS version 20. Data was analyzed using descriptive and bivariate statistics and thematic analysis for in-depth interview.

Results- The study revealed that the health care providers' performance by five FANC components was as follows, on average comprehensive history taking had the highest performance (92%) and lowest performance was in clinical examination (54%). There was statistically significant difference ($p < 0.05$) on the performance of health care providers where health officer and diploma midwives total average percentage performance scores were 79% and 75% respectively, while nurses scored 67%. Practice compared by visit and time spent showed that health care provider perform better in visit one (78%) and worse in visit three (62%). The average duration was 19 minutes for visit one and the time reduced during subsequent visits and was lower than WHO/National protocol.

The qualitative data analysis revealed that there is variation among health care providers experience in implementing FANC and this may depend on their knowledge on FANC and work collaboration from their colleagues. Besides, Health care providers performed most of the procedures but also omitted certain procedures developed in the WHO / National protocol in all assessed health centers. Most of the assessed health centers have basic equipment's and supplies while the National protocol on selected obstetrics topic including FANC was not found in all health centers and some procedures were not included in ANC card.

Conclusion and recommendations- Health care providers did not spend adequate time as per the WHO/National protocol for each visit and their practice was not uniform. This affects the implementation of all components of Focused ANC and the desired outcome, it is especially prone to shallow health information and counseling which is at the center of Focused ANC. There were adequate equipment and supply to provide FANC in most of the assessed health center except few gaps. Implementation of Focused ANC may require assigning adequate staff and providing training, updating and disseminating the 2010 National Management Protocol on Selected Obstetric Guidelines for Antenatal Care to be in line with the new PMTCT guideline then revise FANC card accordingly.

Keywords: focused antenatal care, health care provider, health center, implementation

1. Back ground

1.1.Introduction

Complications during and following pregnancy and childbirth is the cause of women death and most of these complications develop during pregnancy. Other complications may exist before pregnancy but are worsened during pregnancy. Direct causes such as bleeding before and after birth, infection, pre-eclampsia and eclampsia and unsafe abortion account for 80% of all maternal deaths while 20 % caused by indirect causes such as malaria, and AIDS (1).

The World Health Organization (WHO) four pillars of Safe Motherhood are Family planning, Antenatal care, clean/safe Delivery and Essential Obstetric Care. Among the four pillars of Safe Motherhood, antenatal care remains one of the interventions that have the potential to significantly reduce maternal morbidity and mortality when properly conducted (2). Ante natal care, the care that a woman receives during pregnancy, helps to ensure healthy outcomes for women and newborns (3).

The purpose of antenatal care is to screen for signs of illness or other complications that may occur during pregnancy and are known to have an unfavorable outcome on pregnancy. For instance, presence of pre-eclampsia and eclampsia by blood pressure measurements and urine analysis did during antenatal care visits and also alerts the woman to seek medical attention when the condition appears (4).

The importance of antenatal care (ANC) for the prevention of maternal and infant mortality in developing countries is an ongoing debate (5). However, WHO indicated that in developing countries, ANC also reduces maternal mortality and morbidity directly through detection and treatments of pregnancy related or inter- current illnesses (malaria, anemia and syphilis) which are prevalent and have an impact on maternal and neonatal health (4). Similar finding were also observed in retrospective studies done in Ethiopia, India, Nigeria, Senegal and Zimbabwe which discovered that a lack of ante-natal care was an important risk factor for maternal deaths (6).

The traditional (standard) antenatal care (ANC) that used risk approach, that classifies which women are more likely to experience complications and assumes that more visits mean better outcomes for the mother and the baby was used widely despite some disputes on its effectiveness in reducing maternal mortality as many of the ANC components have not been exposed to scientific evaluation (7).

This further substantiated by the findings of a study done by Gerein, Mayhew and Lubben (2002) reflect that although antenatal care is one of the best strategies to improve maternal health, it has been challenged by critics that ante-natal care is not based on scientific evidence and as such does not appropriately meet the needs of pregnant women (8).

Cognizant of this fact, the World Health Organization (WHO) has developed a new approach, focused antenatal care (FANC) package that includes counseling, examinations, and tests that serve immediate purposes and have proven health benefit and recommends only four visits for normal pregnancies. Thus, the new approach focuses on the quality of care than the quantity/ number of visits. The package is also designed as a job aid for antenatal care (ANC) providers that include the forms and checklists needed to implement the package and instructions for use (7).

The new model reduces the number of required antenatal visits to four, and provides focused services shown to improve maternal outcomes. FANC eliminates the traditional risk assessments and instead emphasizes helping women to maintain normal pregnancies by identifying existing health conditions, detecting emerging complications, promoting health, preparing for a healthy birth, and educating clients on postpartum care including nutrition, breastfeeding, and family planning. Further, trials conducted in Argentina, Cuba, Saudi Arabia, and Thailand proved that FANC was safe and was a more sustainable, comprehensive, and effective ANC model (7).

There is a substantial quality gap in ANC services in sub-Saharan Africa. While coverage of at least one ANC visit is relatively high at 68%, many women attending ANC do not receive the full range of evidence-based components during pregnancy. This quality gap demonstrates key missed opportunities during antenatal care services (3).

In Ethiopia, ensuring access to a core package of maternal and neonatal health services, especially in rural areas where health facilities are limited is used as a strategy to reduce maternal and newborn mortality (9). According to the 2011/12 MOH annual performance review report, although the national and in the study area (Addis Ababa) ANC coverage reach 89 and 100% consecutively PMTCT service is still lagging behind at 25.5 percent.

Further, percentage of deliveries assisted by skilled health personnel is the most important indicator for maternal mortality and is also one of the MDG indicators. Currently this indicator is still low 20.4% and 66.4% at national and in Addis Ababa respectively. Besides, the postnatal coverage in the same year showed 44.5% at national and 41% in Addis Ababa (10).

In 2006/7, the Ministry of Health of Ethiopia adopts the new model of the WHO and modified the antenatal card accordingly. According to 2011 EDHS, coverage of ANC is at 34% for one visit and 19% for 4 visits. Although attendance at ANC is improving, gaps exist in provision, and coverage statistics are usually based on women who have only one ANC visit, whereas 4 visits are recommended and quality varies (11).

Moreover, Antenatal care quality can also be monitored through the content of services received and the kinds of information given to women during their visits as these services raise awareness of the danger signs during pregnancy, delivery, and the postnatal period (11).

1.2 Statement of the problem

According to 2010 estimate, developing countries account for 99% (284, 000) of the global maternal deaths, the majority of which are in sub-Saharan Africa (162 000) and Southern Asia (83 000). At the country level, 10 countries in 2010 contributed 60% of the global maternal deaths and Ethiopia (9000) is one of the countries which account for 3% to 5% of global maternal deaths. (12)

Pregnant women do not using health care services they need before, during and after childbirth due to several reasons including cultural reason, lack of information, un availability of services where they live or they cannot afford the services. Some women do not use services because they do not like how care is provided or because the service are not of high-quality (1).

Although pregnant women are advised to have first ANC attendance before the 16th week of gestation free of charge, only 6% women initiate ANC in the first trimester (13).

In Ethiopia the use of antenatal care services is strongly related to the mother's level of education and wealth. Women with more than secondary education are more likely to receive antenatal care from a health professional (91%) than those with no education (25 %). Likewise, women in the highest wealth quintile attend ANC (75%) compared to 17% of those lowest in the wealth quintile (11).

Recently, antenatal coverage is increasing in many Africa countries. However, the coverage alone does not ensure women access to quality of care. In Africa poor quality in ANC clinics, interrelated with poor service implementation mainly due to lack of standards of care and protocols, shortage of supplies and drugs, poor attitudes of health providers and insufficient number of skilled providers mostly in rural areas (15).

A study in Tanzania on maternal mortality and maternal morbidity audit of all mothers with severe maternal morbidities and mortalities at district hospital substantiates the above finding. The study revealed that despite 94% coverage of ANC at least once; the quality of care showed that among women admitted in hospital with severe maternal morbidities of 754 ANC visits made by those 263 women with antenatal cards, BP, Hb and albumin in urine were checked in only 69%, 25% and 22% respectively. Further 20% of the 263 mothers who attended ANC their cards reviewed and showed substandard antenatal care 39 mothers presented with severe anemia and eclampsia were not checked despite their regular follow up this was due to poor supply of essential ANC equipment and poor performance of care providers (16).

Similarly the 2007 Zambia Demographic and Health Survey showed high maternal mortality (591 maternal deaths per 100,000 live births) in spite of 94% ANC coverage at least once (14). Also in Ethiopia Demographic and Health Survey despite improvement showed in the percentage of women attending ANC from 28% in 2005 to 34% 2011; there is no change in maternal mortality (11, 13).

In addition, variations in the provision of components of antenatal care were observed on both Zambia and Ethiopia DHS. According to Zambia DHS, iron supplementation, weight and blood pressure measurement, IPT of malaria, and tetanus vaccination were each received by over 80% of women, while VCT for HIV was received by 50%, drugs for intestinal parasites by about 33%, and only about 25% of women reported that their urine had been tested at ANC (14). Whereas, EDHS showed that 72% blood pressure measurement, 41 percent had a urine sample taken, 34% tetanus vaccination, 17 and 6 percent of women took iron and medicine for intestinal parasite. (11).

A study done in Ethiopia, Adama town revealed that despite 91 % client satisfaction on ANC service, 59.7% of clients received information on their own health whereas less than a third had information on how to recognize serious problems occurring during pregnancy (17).

Likewise, according to the 2011 EDHS in Addis Ababa although some of the ANC components such as blood pressure measurement, urine and blood sample were done properly; only 38% and 4.3% of pregnant women received Iron tablet and intestinal parasite drug respectively. Moreover, information on signs of pregnancy complication such as vaginal bleeding 34%, severe headache 31%, blurred vision only 6% and fever 8% were informed to pregnant mothers (11). This implies even if the coverage of ANC is high; the type of ANC care is not as per the standard.

Despite the importance of FANC, sufficient studies are not yet done on its implementation status in Ethiopia. Therefore assessing the practice of FANC at primary health care is important and will contribute the quality of antenatal care.

1.3 Rationale of the study

Despite the fact that the international community is optimistic about the potential of focused ANC to ensure better maternal outcomes and MOH also adapt FANC and practiced all over the country; not much information is available on whether health workers actually carry out all FANC procedures as outlined in the guidelines.

The content of antenatal care is important in assessing the implementation and quality of ante natal care services. Therefore this study aims to fill the gap in knowledge by assessing health workers' knowledge and practice in using the procedures set in the FANC guidelines

The FANC protocol has been in place in Ethiopia since 2007 and the overall percentage of ANC coverage in Addis Ababa is substantial (93.6%) in 2011 EDHS and 100% according to 2011/12 MOH annual review report (10). However, some studies done in Ethiopia including in Addis Ababa (17,18) and the 2011 EDHS (11) showed that procedures proven to be effective and integrated in the Federal Ministry of Health management protocol on selected obstetric topics (19) were not performed on all women.

Although studies on quality of ANC have been carried out elsewhere, there is paucity of data on the practice of Focused Antenatal care in Ethiopia. More meticulous examination of the implementation of Focused Antenatal care is needed in order to identify specific problems and develop strategies to improve and reduce maternal mortality.

The result of this study could be fed into maternal and newborn health programs and guide the development of strategies and programs for improving practicability of Focused Antenatal care.

2. Literature review

Introduction

This section includes review on maternal health, ante-natal care, focused ante-natal care services and its implementation in Ethiopia and other countries.

2.1 Maternal Health in Ethiopia

The fifth millennium development (MDG) goal aims at reducing maternal mortality by 75% by the year 2015 (20). Of the 210 million women who become pregnant each year some 30 million, or about 15%, develop complications, which are fatal in 1.7% of cases, giving 529,000 maternal deaths per year. In addition, almost 4 million infants do not survive childbirth or the immediate postnatal period, and millions more are disabled because of inadequately managed pregnancies and births although in the year 2010 showed reduction to 287,000 still much work demand to achieve MDG 5.(1, 12).

The highest maternal, neonatal and under-five mortality rates are in sub-Saharan Africa and in Southern Asia. Although substantial progress has been made towards achieving the Millennium Development Goals (MDGs) 4 and 5, the rates of decline in maternal, newborn and under-five mortality remain insufficient to achieve these goals by 2015 (21).

Since the inception of safe mother initiative there is a known “delay model” that contributes to Maternal morbidity and mortality: the 3 delays in: (i) decision to appropriate medical care for an obstetric emergency; (ii) reaching an appropriate Emergency Obstetric and Neonatal Care (EmONC) facility; and (iii) receiving adequate care when the facility is reached (22). According to 2011 EDHS, the most important barriers to access health services that women mention are taking transport to a facility (71%), followed by lack of money (68%), and distance to a health facility (66%) (11).

In Ethiopia, since Safe Motherhood Initiative and International Conference on Population and Development, several strategies have been put in place to reduce maternal mortality ratio (MMR). The Federal Ministry of health (FMoH) developed the National Reproductive Health strategy in 2006, the National Youth and Adolescent Reproductive Health strategy 2007, and the Road Map in 2012 in line with Health Service Development Programme IV and African Maternal and Newborn Health Road map the main emphasis of which is to improve the quality of maternal services (19).

2.2. Antenatal Care Services

Antenatal care is a key entry point for a pregnant woman to receive a broad range of health promotion and prevention and treatment of anemia; prevention, detection and treatment of malaria, tuberculosis and sexually transmitted infections HIV/AIDS. Ante natal care is also an opportunity to prevention of HIV transmission from mother to child; tetanus toxoid immunization and promotes the benefits of skilled birth attendance, postpartum care for themselves and their newborns and postpartum family planning (15, 23).

Despite the increase rate of attendance in ANC at any point during pregnancy in Ethiopia, only 11% of the women initiated ANC before fourth month of pregnancy as reported in EDHS 2011. Most women initiated ANC at five to six months. Further, Urban women initiate ANC visit earlier and are more likely to have made four or more visits (46 percent versus 14 percent) than their rural counterparts (11). Similarly community based study done in rural western Kenya revealed that only 14% of women were visited the ANC in the first trimester; a perceived lack of quality in the ANC was associated with a late first ANC visit (24).

According to 2008 systematic review of the literature on factors affecting the utilization of antenatal care in developing countries; the major factors were socio-demographic factors such as maternal education, husband's education, marital status, household income, availability, accessibility and affordability of the service, women's employment, media exposure and having a history of obstetric complications. Thus adequate utilization of antenatal care cannot be achieved only by establishing health centers; women's overall status in the household and society needs to be considered (25).

Quality Antenatal care is very important for preventing maternal morbidity and mortality particularly in places where the general health status of women is poor. Improving quality of health care is one of the strategies in Health sector development program IV (HSDP IV) of Ethiopia. Satisfying patients and clients is also the primary goal of the Government's reform program (10).

2.3. Focused Ante Natal Care (FANC)

2.3.1 Overview and goal of Focused Ante Natal Care (FANC)

ANC has long been considered a basic component of any reproductive health care Programme. Traditional (standard) antenatal care have been practiced widely both at developed and developing countries though positive association between the number and timing of visits and the content of the care with better pregnancy outcome is not well documented (26).

The traditional model of ANC demands frequent number of visits, approximately 7-10 visits and used risk identification approach where pregnant women dichotomize in to high and low risk categories. Whereas, FANC provided personalized care to a pregnant women with emphasis on the woman's overall health, preparation for childbirth and readiness for complications focused on detect and treat complications arising during pregnancy and use four visits for pregnant women which needs basic antenatal care (7).

Better understanding of fetal growth and development and its relationship to the mother's health has resulted in increased and renewed attention to the benefits of a more 'focused' model of antenatal care, such as the one tested by WHO (27).

The WHO systematic review of randomized controlled trails on standard (western) ANC and the new model ANC revealed that no significant difference between the new and standard model in terms of severe anemia, preeclampsia, urinary tract infection or low birth weight infants and on the rate of eclampsia. In addition focused antenatal care service produces maternal and peri-natal outcomes similar to that of the traditional mode (7, 5). The new WHO model of antenatal care (FANC) is not associated with increased risk for either women or infants (7).

Consequently, World Health Organization (WHO) recommends the implementation of a focused ANC that consists of four ANC visits and be used by majority (75%) of all pregnant women initiating antenatal care (7).

The focused antenatal care services have guidelines designed as a job aid which includes forms and check lists to help health providers to determine the eligibility of women for the basic component

and identifying pregnant women who need special care with conditions requiring treatment and close monitoring. In addition, Individual interaction between pregnant women and health care provider is an essential element (7). This implies that good antenatal care will be evidenced by a drop in both maternal and perinatal mortality rates.

Besides its direct contribution to better health outcomes, a focused antenatal care provided by a skilled attendant can also contribute to safer childbirth as it gives an opportunity to assist women and their family on birth and emergency preparedness plan (7). Further, study done at Burkina Faso revealed that birth-preparedness and complication readiness may be useful in increasing the use of skilled providers at birth, especially for women with a plan for saving money during pregnancy (28).

The goal of FANC is to promote the health and survival of mothers and babies, Ethiopia has adopted the WHO focused ANC package that emphasizes quality than quantity. The major goal of focused ANC is to help women maintain normal pregnancies through:

- **Health promotion and disease prevention-** focused on issues affecting a women's health as well as that of the newborn baby.
- **Early detection and treatment of complications -** entails assessment with dialogue and examination of the pregnant woman for chronic conditions and infectious diseases
- **Birth preparedness and complication readiness planning-** provides a woman with a plan about the place of birth, transport, what items to prepare, how to save money for preparations and about support during and after birth

The focused ante-natal care model with its four visits at 16 weeks, 24-28 weeks, 32 weeks and 36 weeks by pregnant women has been recommended by the WHO to be implemented worldwide in order to improve ante-natal care services (7, 29).

2.3.2 Acceptability and practice of Focused Ante Natal Care (FANC)

A study done in Tanzania to assess the health workers' antenatal care practices with reference to the national Focused Antenatal Care guidelines identifies factors influencing health workers' performance revealed that there were varied practices in implementation of Focused ante natal care in the assessed clinics mainly due to poor implementation of the Focused Antenatal Care guidelines, lack of trained staff and absenteeism and supply shortages (30).

Further, the study done in three African countries revealed that health workers in all three country sites failed to perform all procedures indicated in the focused ANC guideline also variation in the provision of ANC services showed among health facilities; this could not be always explained by the lack of supplies(31).

Similarly in 2003 a study done at Armenia revealed that physicians scored almost twice as high (67% of total score) as nurses/midwives (38% of total score) in ANC performance and in a study done in 2007 similar finding was found that nurses and midwives were performed 29% and 43% respectively (32,33). On the other hand, the study done in Kenya showed that focused ante-natal care is acceptable to both client and providers and is supported by government (34).

A study in Nigeria focusing on knowledge of health care providers on FANC revealed that the FANC is accepted by the health care workers but not practiced as 42% of the respondents considered frequent routine as the norm and that women should be classified by risk category, 52% identified ignorance as one of the factors affecting focused antenatal care while 66% accepted that focused antenatal care is not enforced by their healthcare facility due to lack of policy concerning the practice of focused antenatal care. Moreover, majority of health care providers are not aware of FANC components. Only 6% of the respondents agreed that early detection and prevention of diseases are a major component of focused antenatal care (35).

In some African countries although the FANC is feasible to practice and get acceptance by both health providers and the client; inadequate staff training and shortages of equipment and supplies have been identified as a major contributing factors for not fully implementing FANC. A study done in South Africa, Kwazulu-Natal, many ANC attendees of pregnant women did not receive

counseling on nutrition in pregnancy, breastfeeding, and postpartum family planning as planned. Nor were women adequately educated about pregnancy danger signs. Such unsatisfactory results might be attributable to high staff turnover (36).

Moreover, a study in Kenya showed that inadequate staff training and shortages of equipment and supplies inhibit the full provision of FANC services. Despite these challenges, the new model did increase the quality of specific components of care, such as detection of diseases and counseling on postpartum family planning use (34).

WHO recommend that the first visit should take 30-40min, 2nd visit 20 min, 3rd visit 20 min and 4th visit not stated (7). A study done in three African countries (Burkina Faso, Uganda and Tanzania) on compliance with focused antenatal care revealed that, the only procedure practiced by all health workers across the countries was uterine height measurement. Health workers did not provide general educational information on PMTCT, delivery, or STI (31).

The above findings also revealed that the duration of first visits was <15 minutes and health workers spent even less time in subsequent visits in all three sites. Reagents for laboratory tests and drugs as outlined in the focus ANC guidelines were often out of stock in most facilities (31). Another Tanzania study revealed that average time spent for visit one and revisits was 15 and 6:30minutes (37).

The content of the focused ANC package in Ethiopia is comprehensive as recommended by WHO. To improve the quality of obstetric care, MOH develop management protocol on selected obstetric topics including FANC (30). Health centers are expected to provide FANC that was adapted by MOH and to ensure timely availability of essential equipment's, supplies and drugs for maternal and newborn health services provision by implementing quality improvement approaches (40). The guidelines are intended for use by health professionals and health institutions that provide ANC services.

2.3.3 Component of Focused Ante Natal Care (FANC) and its implementation

In this section under detection of existing disease/complication goal of FANC, comprehensive history taking, Laboratory Investigation and clinical examination was examined. Information provision and counselling, drug and vaccination will be seen under the health promotion and disease prevention and Birth preparedness and complication readiness planning goal of FANC.

Comprehensive History Taking

Comprehensive history taking involves recording a client's personal, family and social history as well as her current and previous obstetric history to screen the condition of pregnant women. Pre-set criteria are used to determine the eligibility of women for the basic component thus, assessing the previous and current history taking is important during initiating antenatal care and in subsequent visits (7).

The study done in Ghana revealed that HCP take full history for only seven (24%) of pregnant women during first visit (39) and partial histories taken in Kenya and South Africa (34, 36). In contrast study done in Sudan, in Ribat University Hospital, Khartoum and an exploratory study in antenatal care clinics in the Kilombero Valley, South-eastern Tanzania revealed that obstetric history was taken for more than 92% of clients (38, 30) record review performed for 88% of clients (18).

Laboratory Investigation

Unlike tradition ANC which focused on detect and treat high risk conditions arising during pregnancy, FANC concentrated on detect and treat complications arising during pregnancy, whether medical, surgical or obstetrical. One of the purposes of antenatal care is to screen for signs of illness or other complications that may occur during pregnancy and also alert the woman to seek medical attention when the condition appears (4).

Study from Kenya showed that where significantly more clients received laboratory investigations (34) and South Africa study HIV test (81%) and urine, blood group and syphilis test done for over 90% of clients (36). Further the 2011 Sudan study revealed that hemoglobin, urinalysis, blood group and RH factor were done in (62.3%), (53%), (57.7%) of clients respectively(38). In the contrary poor performance in all laboratory tests due to irregular supply of reagents were reported (39, 31, and 30).

Clinical Examination

One of the elements of FANC is the early detection and management of diseases. To this end clinical examination remains the gauge for the diagnosis especially in low resource setting where ultrasound services may not be available in primary health care setting.

Clinical examination were performed average at 33% below the physician's 39% due to lack of pre-service antenatal care training; lack of in-service education; low client flow at Health posts; and lack of supervision (32, 33). Whereas, study done in Sudan revealed that blood pressure , fundal level and fetal heart sound were checked and documented in 266 (88.7%), 280 (93.3%), 244 (81.3%) respectively(38). Similarly studies from South Africa and Tanzania(2011) showed HCP were performed weight, height, blood pressure, fundal palpation and fetal heart sound listen above 89%.(36,30) and similar finding showed in Burkina Faso except for fetal heart sound listen 76% and edema checked less than 63% in all three countries(31).

The Ghana and Kenya studies showed that more clients had their weight and blood pressure, measured fundal height, and general appearance observed by the HCPs (39, 34) and received a breast examination and respiratory rate taken (34). Other clinical examinations were rarely performed and almost none of the client measured their temperature and pulse rate on both the Ghana and Kenya and Tanzania studies (39, 34, and 30). Moreover, study done in Ethiopia shows all clients were measured their vital signs while general examination and fetal growth assessment were done for only 29% and 69% respectively (18).

Information provision and counselling

Information provision focused on health promotion is a core concept in Focused ANC as reducing the number of routine appointments which enables more time per appointment for care, information giving and support for pregnant women (7). Antenatal care is also an opportunity for health education and clarifying topics related to pregnancy and inform to women about the danger signs and symptoms for which care should be provided without delay.

Armenia study showed that mid-level health provider counselling for pregnant women were performed average at 20% below the physician's 25%. The 2008 Study done in three Africa countries showed that only 7% and 2% women received information on danger sign in Iganga (Uganda) and Nouna (Burkinafaso), respectively, compared with 67% in Rufiji (Tanzania) and information on immunization 14% , 9% and 48% in Iganga ,Nouna and Rufiji respectively (31). Another study done in Tanzania in antenatal care clinics in the Kilombero Valley showed that maximum percentage of information provision was on birth preparedness (50%) and least on danger sign (3%) (30).

Studies done in Kenya showed that there were varied practice by the HCPs in information provision and counselling and no client received all the required information. For instant on danger sign 40%, information on immunization 58%, counselling on STI/HIV small proportion of clients and over 75% of clients received partial information on birth preparedness and complication readiness and information decrease on subsequent visits (34).

Similarly, the Ghana study showed that information on danger sign provided for less than half of clients and information on postpartum care and family planning for only 19% while information on birth preparedness and complication readiness done very well (39). In the same way, South Africa study revealed that on average pregnant women being counselled on less than two out of possible eight danger signs and less than half of all clients received counselling on postpartum family planning (36). Study done in Ethiopia revealed that half of the clients were received information related to pregnancy (17, 18) while less than a third of clients informed on danger signs (18).

Drug and vaccine provision

Regarding prevention of anemia and tetanus studies from Africa countries (Ghana, Kenya and South Africa) revealed that HCPs frequently prescribed iron tablet and folic acid and tetanus toxoid injection (39,34 and 36). Similarly Study done in three Africa countries showed that 95% of clients received iron tablet in Nouna and less than 60% in Iganga and Rufiji (31) and also Tanzania study showed Iron and mebendazol were provided to ANC clients 6% and 11% respectively (30).

In summary, the studies above confirm the importance of Focused antenatal care that consists of four ANC visits and a well-defined set of interventions proven to be beneficial for maternal and neonatal health. In short, the reviewed literature showed that practicing FANC is not straightforward and easy in developing countries. Consequently, there is a need to conduct research on the practice of FANC by service providers in primary health care as ANC service (high coverage) alone will not fulfill the goal of FANC.

Conceptual Framework

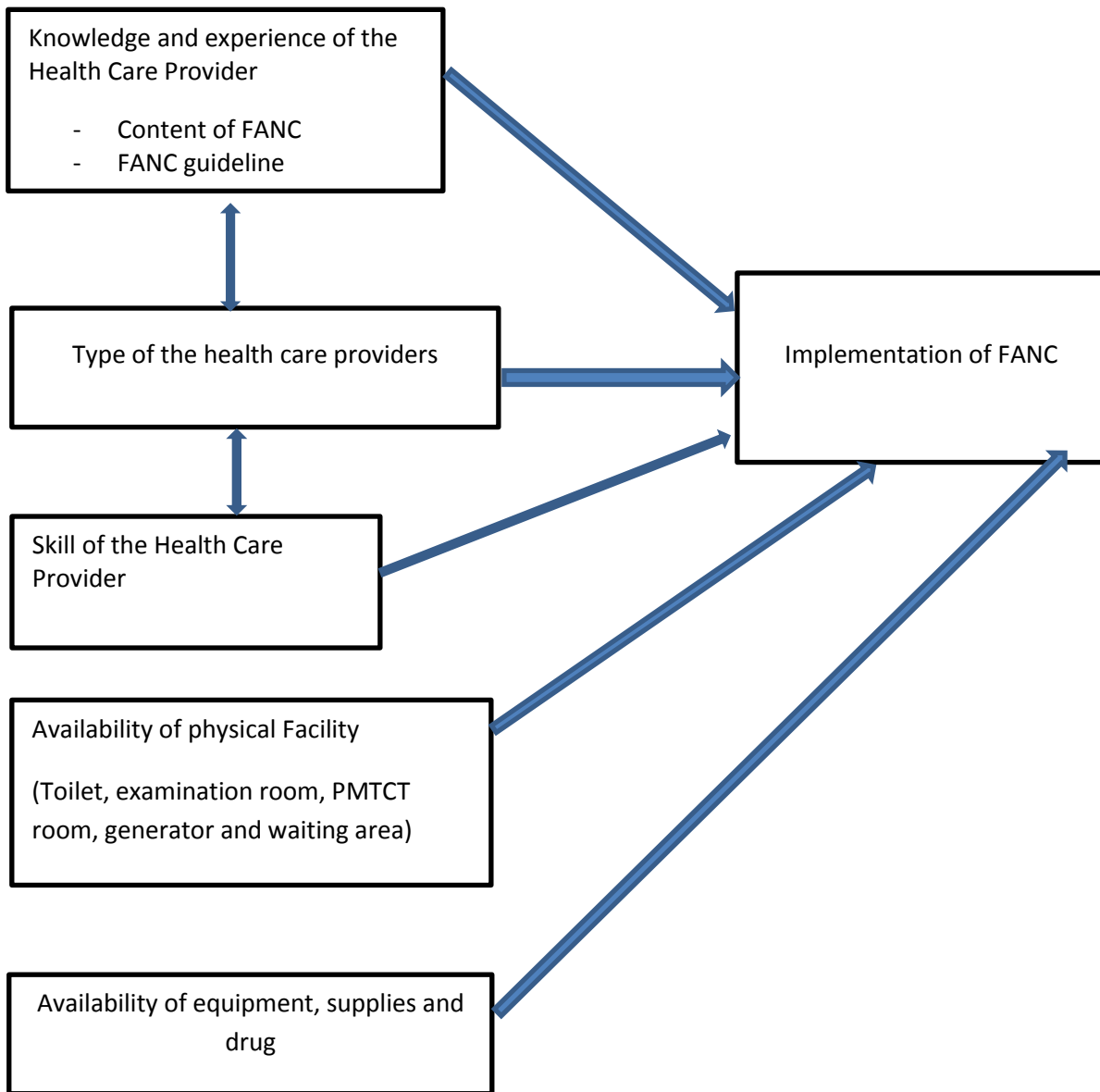


Figure 1: Conceptual Framework for the assessment of Implementation of FANC

3. Objectives

3.1 General Objective:

To assess the implementation of Focused Antenatal care in public health centers in Addis Ababa, Ethiopia.

3.2 Specific objectives

1. To explore providers experience on the implementation of Focused Antenatal Care in public health centers of Addis Ababa.
2. To assess providers practice on Focused Antenatal Care in public health centers of Addis Ababa
3. To determine availability of resources (human and material) for providing Focused Antenatal Care in public health centers of Addis Ababa.

4. Methodology

4.1 Study area and period

The study was conducted in Addis Ababa, Ethiopia which has a population of over 3 million (3,038,096) with annual growth rate of 2.1. According to 2007 CSA projection for the year 2012. The sex composition of the population is, 47.6% male and 52.4% Female of which 34.6% are women in reproductive age (15-49 years) of them yearly 2.4% become pregnant. The city is divided into ten sub cities and 116 Kebeles (41).

Addis Ababa has 51 hospitals of these, 6 are under Addis Ababa Regional Health Bureau (AARHB) and 5 are specialized referral hospitals, three belongs to defense forces (military) and police referral hospitals. Furthermore the city administration has 70 health centers.

This study was conducted in public health centers of Addis Ababa that provide maternity and child health services from November 2012 to August 2013. FANC has been given in all the health centers in the city. Data collection was conducted from July to August 2013.

4.2 Study Design

Institution based cross-sectional study was conducted using both quantitative and qualitative methods.

4.3 Study population

4.3.1 Source Population

All public health centers under Addis Ababa Regional Health Bureau to assess for availability of medical equipment's, all health care providers working in public health centers in Addis Ababa and all ANC service utilization in public health centers in Addis Ababa

4.3.2 Study population

All selected public health centers, Ante natal care service utilized and health care provides working during the data collection period at antenatal care clinic in the selected health centers in Addis Ababa

4.3.3 Inclusion and exclusion criteria

4.3.3.1 Inclusion criteria

All health care providers working in Antenatal care clinic during data collection whether trained in FANC or not and all Pubic HC providing ANC service.

4.3.3.2 Exclusion criteria

Those health care providers who work in the selected health center antenatal care services but do not present during data collection time

Those health care providers who are not interested willing to be observed or interviewed

4.4 Sample size determination and sampling technique

4.4.1 Sample size determination

The sample size for quantitative data was estimated using a formula for single population proportion. The sample size for implementation of FANC to observe ANC session was determined using previous study done at Addis Ababa (18) where the performances mean score for Nurses were 18). Therefore the estimated sample of this research was 18% with 95 % certainty and a maximum discrepancy of +3% between the sample as follows.

$$\begin{aligned}n &= \frac{Z_{\alpha/2}^2 p (1-p)}{d^2} \\ &= \frac{(1.96)^2 (0.82 \times 0.18)}{0.03^2} \\ &= 630\end{aligned}$$

Where; n= the desirable calculated sample size

- $Z = 1.96$ (95% confidence level)
- $p = 18\%$ assumed proportion of ANC session proper implementation of FANC by HCPs.
- $d =$ degree of accuracy desired (3%)
- Estimated design effect (*DEFF*) 1.3

Sample size= **819**

To assess the qualitative data of health care providers' (HCP) knowledge, purposive sampling was used to select HCP for an interview. The sample size was determined based on data saturation (considering the limited budget and time resource the estimated sample was at least one HCP was interviewed from each health center. Hence, an in-depth interview was undertaken with 12 health care providers. Furthermore, a standardized checklist was employed to assess the availability of resources for implementation of FANC in all selected health centers.

4.4.2 Sampling technique and procedure

From all public health centers in the city, 10 health centers, one from each sub city were randomly selected. Then, using the available client flow statistics in each Antenatal clinic for the previous four months; estimated numbers for data collection was determined and used as sampling frame.

To achieve the desired sample size for the study, the number of **ANC session** selected from each health center was determined by a proportional allocation ratio method.

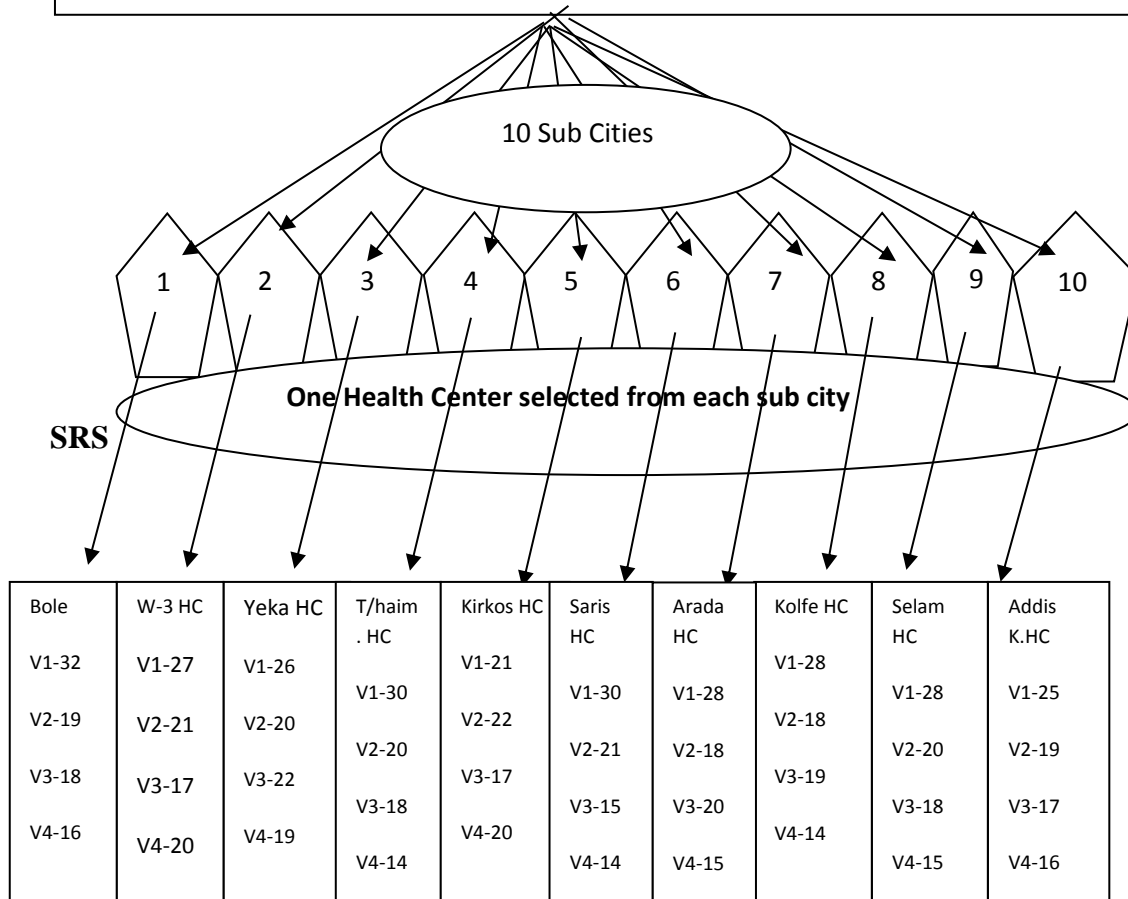
Every day each antenatal session was selected by systematic random sampling method during the antenatal clinic days. The first ANC session was selected by a simple random sampling technique applying a lottery system from the first three ANC cards then after, every day every 3rd ANC card was selected from the sampling frame and observed for implementation of FANC until the estimated sample size for the center was achieved.

The information on ANC services received during current visit was collected on 816 ANC attendants out of 819 through direct observations using check list. Information about ANC attendants on age, gravidity, gestational age at first visit and at the time of ANC session observation was collected from ANC cards.

For qualitative data

Key informant interviews of 12 FANC service providers were also carried out by the principal investigator to elicit the experience of HCPs and adequacy of their knowledge regarding the components of FANC.

50 Public Health Center provide MCH service in Addis Ababa



Proportional to sample size calculation

819 ANC sessions

Key
SRS- Simple Random Sampling

Figure 2: Schematic presentation of sampling procedure4.5 Study Variables

4.5 Study Variable

4.5.1 Dependent variable:

- Implementation of Focused Antenatal Care

4.5.2 Independent variables:

- Profession of the health care providers
- Practice of health care providers on Antenatal care and FANC
- Availability of equipment ,supplies and drugs
- Availability of physical facility(ANC room, generator, waiting area and toilet)

4.6. Data collection instruments

A structured observation using pre-defined check list of 42 items/tasks was used to see the routine practice against the standard for each visit that was developed on the basis of Federal Ministry of Health management protocol on selected obstetric topics. The components of ANC services were categorized into Five groups: (i) Comprehensive history taking (5 Items) (ii) Provision of Information (12 Items); (iii) Clinical Examinations (13 items); (iv) Laboratory Testing (collected sample, referred to the laboratory) (7 items); and (v) Distribution of Drugs (5items).

For **first visit**, activities include a detailed history taking, clinical examination (weight, Blood pressure, pallor, head to toe examination and vaginal examination); Laboratory testing (Hgb, blood group & Rh factor, urine exam for infection and protein and VDRL, HIV and stool exam); Provision of Information on Danger signs in pregnancy, Immunization, Nutrition, PMTCT, Breast feeding, Birth preparedness and Complication readiness, Counseling to avoid smoking and alcohol and schedule of return visit ; Distribution of drug includes tetanus toxoid vaccine (first dose) and iron/ folate were assessed.

For **second visit**: History of complaints in current pregnancy; assessment for fetal heart sounds in addition to the clinical examination performed during the first visit (excluding vaginal examination); urine test; regarding distribution of drug and information provision it was similar to first visit except immunization and HIV information.

For **third visit**: History of complaints in current pregnancy; assessment of breast examination and presentation in addition to the procedures done in the second visit; urine for infection and Hgb test; iron refill and mebenedazol; information provision Breast feeding, Family planning, Importance of postpartum visit and Sign of Labour + second visit information.

For **fourth visit**: History of complaints in current pregnancy; clinical examination, laboratory test and information provision similar to visit three was assessed. In addition variables on age distribution and obstetrical characteristics of observed antenatal clients during ANC session observation were taken from ANC card.

The check list for availability of resource assessment was used to collect the information on current availability of staff, space, equipment, reagents, drugs and guidelines/reference materials (29). The checklist was constructed using five indicators: Availability of infrastructure had value ranging from (0-8): ANC waiting area, private space for ANC counseling, and private space for ANC examination, electricity, generator, toilet, and infection prevention. Availability of essential drugs had value ranging from (0-5): Tetanus toxoid vaccine, Antimalarial drug, Fefol, Anthelmintic and Magnesium Sulfate and each value giving a score of one for available and zero for not available equipment and supplies.

Availability of essential equipment had value ranging from (0-6): Screen, weighing scale adult, Sphygmomanometer, stethoscope, foetoscope, and thermometer. Availability of laboratory supplies had value ranging from (0-8): reagents for urine test for glucose, protein, Microscopic urine test, VDRL for syphilis, HIV rapid test, reagents for anaemia and Blood group and RH factor tests, and pregnancy test, and Availability of guidelines/reference materials had value ranging from (0-3): availability of ANC register, revised ANC cards, management protocol on selected obstetric topics.

Finally provider experience on the implementation of FANC also assessed through in-depth interview using a semi-structured interview guide. The interview guide comprised of data on socio-demographic characteristics, service year, in- service training, knowledge, and their experience on the implementation of FANC.

4.7 Data collection methods

Quantitative data was collected using observation check list during each ANC session, 10 data collectors were recruited from out of the selected health facilities and were supervised by 2 MSc. Nurse/midwives. The data collectors were used non participatory observation while the HCPs performed the ANC to pregnant women. The in-depth interview was carried out by the principal investigator using semi-structured interview guide and recorded with audio recorder after written consent obtained from health professionals and notes were also taken.

4.8 Data quality control

For qualitative data the interview guide was prepared in English and translated to Amharic and was checked for its consistency by back translation to English by two different individuals. The trustworthiness of the result was ensured by careful selection of informants with different profession, sex and educational backgrounds and established good rapport with them.

In-depth interview was used in order to get full picture of FANC knowledge and practice, transcribing the interview verbatim identifying and analyzing discrepant data and seeking feedbacks from colleagues. In addition, the interview guide was pretested (on 10% of the sample in health care settings which were not included in the actual study) to check the interview flow, question clarity, and for missing or inappropriate information.

For quantitative data, data collectors and supervisors were recruited and trained for 2 days on how to collect data, maintain confidentiality and fill the observation checklist prior to study period. Every day the filled checklist was cross-checked for completeness. The principal investigator was responsible for overall activities, gave training, checking the activities with the plan.

4.9 Data processing and analysis

Data were entered and cleaned with EPI Info version 3.5.1 and analyzed by SPSS version 20, and it was summarized by descriptive statistics for all variables. Frequency, table and graphs were used to present the data.

For FANC practice, descriptive analysis was used mainly to identify the proportions of procedures completed by the health workers and the time spend on ANC session using percentage, range and

arithmetic mean. For the ANC observation tool, two items out of the 42 items were deleted from the analysis because they could not be directly observed as the task usually linked to other unit and 10 questionnaires from 816 were discarded due to incompleteness of information.

The scoring system for the observation checklist consisted of giving a score of one for the task/item done correctly, while the task/item not done was scored zero. When analyzing the data an 85% cut-off was used i.e. the practice was considered adequate/proper if the percent score of the essential tasks in the checklist was 85% or more, and inadequate if less than 85% (49) items were summed (with equal weights) to produce a total score of all possible items, to meet the at achieved overall performance of health care providers.

In addition bivariate analysis was used to explore differences between types of health care providers and ANC service delivery. Information on the identified FANC components was cross-tabulated and used chi-square to test for association between the type of HCPs and P value <0.05 as cut off point for statistical significant within the health facilities.

The qualitative data was analyzed manually after identifying thematic areas based on the five components of FANC and it was triangulated with the quantitative data.

4.10 Operational definitions

Antenatal care: a care which is given for pregnant women during their pregnancy until birth.

Implementation of Focused Antenatal Care: status of implementation of FANC measured using indicators of five key components of focused ANC consists of 40 tasks/items. Each item was checked as done correctly (score one) or not done (score zero).85% cut-off was used i.e. the provider performing 85% or above of the essential tasks in the checklist as an acceptable standard for satisfactory implementation of FANC (33).

Knowledgeable: If the health care providers mentioned properly the five components of FANC.

4.11 Ethical considerations

Ethical clearance was obtained from the Research and Ethics Committee (REC) of School of Public Health, College of Health Science of Addis Ababa University.

The second ethical clearance was obtained from Addis Ababa Health Bureau AAHB ethical committee. The letter was given to respective health centers.

The objectives of the study were explained to study participants and written informed consent was obtained from all observed HCPs. Information was provided on that the data collector use non participatory observation using checklist and there is no potential risk that may cause any harm to HCPs and ANC attendant and the information obtained through observation checklist will be kept confidentially. Verbal consent was obtained from the ANC attendant (pregnant women) included in the study immediately before the data collection.

4.12 Dissemination of the study findings

The result of the study will be submitted and presented to Addis Ababa University School of Public Health. The final report will be communicated with different stakeholders including the Regional Health Bureau, health centers, MOH, other agencies engaged with maternal health program in Ethiopia. Finally the result will be published in peer reviewed journal for dissemination worldwide.

5. Result

Status of implementation of FANC was done in ten public health centers using structured checklist based on 40 observation points when 806 clients were examined by 35 health care providers

Characteristics of the ANC attendants

A total of 806 antenatal care observations were made. Among the women who were observed 41.5% were below 24 years of age and about half were between 24 and 35 years. Their mean age was 25.4 years. Two third of observed ANC client were Orthodox Christians followed by Muslims (29%), and the majority (93.5%) of the women were currently married. Educationally, 15% of women had never had any formal education, 43% had attended a primary school, while the other quarter (41.5%) had attended secondary and above (Table1).

Table 1: Socio-demographic characteristics of Pregnant women in public health center Addis Ababa, 2013 (n=806)

Socio-demographic variables	Number	Percent
Age		
15-19	53	6.6
20-24	282	35.0
25-29	332	41.2
30-34	107	13.3
≥35	32	4.0
Religion		
Orthodox	492	61.1
Muslim	231	28.7
Protestant	77	9.6
Other	6	0.7
Education		
Illiterate	124	15.4
Primary	346	43.0
Secondary	298	37.0
Tertiary	38	4.7
Marital Status		
Married	754	93.5
Single	42	5.2
Divorced	4	0.5
Separated	5	0.6
Widowed	1	0.1

Regarding Obstetrical characteristics of observed antenatal clients two out of five ANC clients (40%) were primi gravida; while majority were multigravida. Among ANC attendant 97% knew their LMP, of them majority of women (60%) visiting the health center for their first ANC visit during second trimester while 32% during their first trimester.

Focused ANC practice by the Health Provider

Comprehensive History Taking

According to FANC module personal, social, past medical, surgical, obstetric history and history of current pregnancy is to be asked for visit one. This study showed that for each of the above mentioned history more than 97% of observed ANC clients were taken in visit one . On the other hand, history of complaints in current pregnancy is to be asked during all visits.

Accordingly 252(93.7%) pregnant women were asked in visit one, 170(86.3%) in visit two, 151(85.3%) in visit three, and 155(95.1%) in visit four. Overall this component of FANC was performed above cut of points (85%).

Table 3 below shows the proportion of observed antenatal clients who had received information and counselling on certain topics at each visit. The finding indicate that in visit one information about PMTCT 96.3%, danger sign 95.5%, immunization 93.3% was the most commonly discussed. Whereas, information on birth preparedness, complication readiness, breast feeding, smoking and alcohol were the topics discussed in less than70% of the clients.

Information commonly provided in visit two was on danger signs in pregnancy (88.8%) and the least discussed topic was on smoking and alcohol (43%). On the other hand, in visit three and four danger sign was the topic most discussed but the least discussed topic was about family planning <40%. In each of the four visits, more than 90% of the observed ANC clients had been informed on schedule of return visit.

Table 2: Information provided to observed pregnant women during the four ANC visits in public health center Addis Ababa, 2013 (n=806)

Information provided	Visit one Number (%)	Visit Two Number (%)	Visit Three Number (%)	Visit Four Number (%)
Nutrition information	208(77.3)	139(70.6)	130(73.4)	129(79.1)
Immunization	251(93.3)	-*	-*	-*
PMTCT information	259(96.3)	-*	-*	-*
About Family planning	-*	-*	59(33.3)	64(39.3)
Danger signs in pregnancy	257(95.5%) 158(58.7)	175(88.8) 118(59.9)	160(90.4) 119(67.2)	154(94.5) -*
Birth preparedness				
Complication readiness	172(63.9)	128(65)	120(67.8)	-*
Infant/Breast feeding	165(61.3)	124(62.9)	117(66.1)	111(68.1)
Smoking and Alcohol	160(59.5)	85(43.1)	84(47.5)	70(42.9)
Importance of postpartum visit	-*	-*	69(39)	75(46)
Symptoms/signs of labour	-*	-*	116(65.5)	143(87.7)
Schedule of return visit	253(94.1)	184(93.4)	168(94.9)	155(95.1)

*Information was missed because it is not applicable according to the WHO/National FANC guideline

The laboratory investigation performed for observed pregnant women during ANC visits. In visit one HIV test was done for all the observed pregnant clients while stool exam was done for only 35.7% of clients. The required laboratory investigations for the other visits than visit one was performed in less than 40% of the clients. From in-depth interview and during observation HIV test was done every three month as per the revised PMTCT Guide line that adopts the WHO 2010 PMTCT guidelines.

From the table 4 below, blood pressure and weight were measured in more than 99% of the observed pregnant women in each visit. In visit one pulse rate, temperature and respiratory rate were measured in 9.7%, 1.9% and 0.07% of observed pregnant women respectively.

Health care providers checked conjunctiva for anemia in the four ANC visits with the practice ranging from 91 % visit three to 72% in visit one . Head-to-toe examination in the first visit and breast examination in both first and third visits were done for about 38% of observed clients. Abdominal examination for fundal height, fetal lie and listening of fetal heart rate were performed for at least 91%, 83% and 84% of the clients respectively in each visits. Edema was checked for 82%

in visit two and 84 % in visit four of the clients while vaginal examination was done for 5% in visit one and 3% in visit two of the clients (Table 3).

Table 3. Clinical Examination done for observed pregnant women during the four ANC visits in Addis Ababa, 2013 (n=806)

Procedures done	Visit one	Visit Two	Visit Three	Visit Four
	Number (%)	Number (%)	Number (%)	Number (%)
Take client's weight	269(100)	193(98)	176(99.4)	161(98.8)
Take blood pressure	269(100)	193(98)	176(99.4)	161(98.8)
Take client's pulse rate	26(9.7)	19(9.6)	20(11.3)	5(3.1)
Take client's Respiratory rate	5(1.9)	-*	-*	-*
Take client's Temperature	2(.07)	-*	-*	-*
Check conjunctiva for anemia	193(71.7)	148(75.1)	161(91%)	139(85.3)
Head-to-toe (whole body)	100(37.2)	-*	-*	-*
Examine breasts	82(30.5)	-*	42(26.0)	-*
Palpate for fundal height	-*	180(91.4)	174(98.3)	160(98.2)
Palpate abdomen for foetal lie & presentation	-*	-*	148(83.6)	146(89.6)
Listen foetal heart sounds	-*	165(83.8)	149(84.2)	148(90.8)
Vaginal examination	15(5.6)	6(3.0)	-*	-*
Oedema	-*	-*	150(84.7)	134(82.2)

*Information was missed because it is not applicable according to the WHO/National FANC guideline

In each visit, fefol was given for the pregnant women with the practice ranging from 67.5 % (in visit four) to 94.1% (in visit one). Anti-helminthic was given in visit three (13.6%) and visit four (24.5%); while anti-tetanus vaccine was given in visit one (87%) and visit two (74.6%). Therefore, observed pregnant women did not adequately get the prophylaxis and provided below the set point for antihelmentics, fefol visit three and four and Tetanus toxoid visit two.

Table 4 shows the implementation of components of FANC by visit. HCPS performed well in comprehensive history taking in all visits; while variation showed in their performance in the remaining FANC components.

Table4. Percentage of implementation of FANC during the four ANC visits in public health center Addis Ababa, 2013 (n=806)

Indicators	Visit/ %			
	V ₁	V ₂	V ₃	V ₄
Comprehensive history taking	95.35	86.3	85.3	95.1
Information Provision	73	86.4	67.9	73.3
Drug Distribution	90.5	81.9	47.2	46
Clinical Examination	39.63	65.5	75.3	80.9
Laboratory Services	87.9	21.05	36.2	25.8

The average time used for a first ANC visit was 19 minutes, with a minimum of 3 minutes and a maximum of 49 minutes and reduced average time during subsequent revisits to 11minutes, 12minutes and 13 minutes in visit two, three and four respectively were below the recommended time in FANC guideline (Figure3).

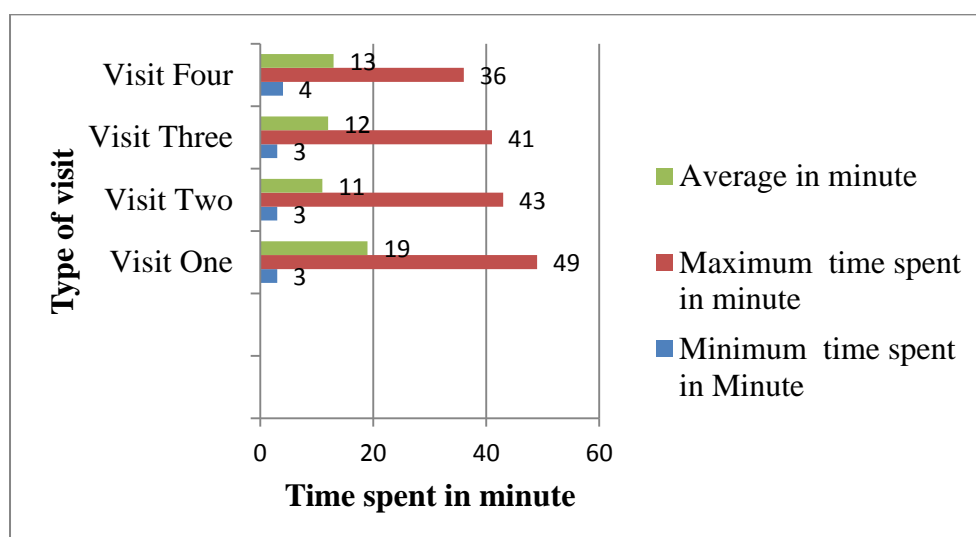


Figure 3: Duration of ANC session according to the visit in public health centers Addis Ababa 2013

Table 5 depicts time spent by each category of health professional in evaluating pregnant women in each visit. Accordingly, in visit one most of the health providers spent less than 30 minutes in evaluating the woman during the follow up. Similarly, in visit two and three they spent less than 20

minutes in assessing pregnant woman although, diploma holder nurses and midwives spent time according to the WHO recommendation in visit one with 19.6% and 20.6% of pregnant women respectively. It was also found that in visit three degree midwives and health officers relatively spent more time in line with the WHO recommendation

Table5: Duration of ANC session according to the visit and Health care providers in public health center Addis Ababa 2013. (N=806)

Time spent in each visit	Diploma Nurse	Degree Nurse	Diploma Midwife	Degree Midwife	Health Officer	X²	p-value
	Number (%)	Number (%)	Number (%)	Number (%)	Number (%)		
Visit one							
<30 min	57(79.2)	81(87.1)	44(75.9)	27(90)	15(100)	11.606	0.170
30-40 min	14(19.4)	11(11.8)	12(20.7)	3(10)	0(0)		
>40 min	1(1.4)	1(1.1)	2(3.4)	0(0)	0(0)		
Visit Two							
<20 minute	41(95.3)	52(89.7)	47(95.9)	15(83.3)	24(85.7)	4.950	0.292
≥ 20 minute	2(4.7)	6(10.3)	2(4.1)	3(16.7)	4(14.3)		
Visit three							
<20 minute	46(95.8)	44(88)	41(89.1)	13(81.2)	15(83.3)	4.304	0.366
≥ 20 minute	2(4.2)	6(12)	5(10.9)	3(18.8)	3(16.7)		

Bivariate Analysis

Association of History taking and type of Health care providers

Regarding comprehensive history taking there is no much difference among health care providers in asking most of the relevant history related to pregnancy. However, in taking history of current pregnancy in V2 and V3 nurses practiced below the cut of point (85%) which also showed statistical significant difference (P-value <0.05).

Association of Information provision and type of Health care providers

As table 6 indicated information provision and counselling to antenatal clients. All health care providers except health officers provide information on nutrition below 85% and there is statistical significance among health care providers in all visits except visit four (p<0.05). Information on breast feeding except in visit two and four by health officers all health care professionals provided information below 85% and statistical significant showed in all visits

All health care providers gave information on immunization and PMTCT above cut off points (85%) though there was statistical significant seen among health care providers on information provision on immunization ($p < 0.05$).

Table6: Information provided to observed pregnant women on nutrition, breast feeding ,immunization and PMTCT during the four ANC visits and Health care providers in public health center Addis Ababa, 2013 (n=806)

Variable	Diploma Nurse n=9 Yes%	Degree Nurse n=8	Diploma Midwife n=9	Degree Midwife n=6	HO n=3	X ² /	P –value
Nutrition info V1	58(80.6)	69(74.2)	47(81)	19(61.3)	15(100)	13.143	.011**
V2	24(54.5)	38(65.5)	39(79.6)	14(77.8)	24(85.7)	11.613	.020**
V3	28(59.6)	36(72)	39(84.8)	11(68.8)	16(88.9)	10.500	.033**
V4	42(80.8)	25(73.5)	40(74.1)	16(94.1)	6(100)	7.314	.120
Breast feeding V1	50(69.4)	48(51.6)	43(74.1)	13(41.9)	11(73.3)	15.543	.004**
V2	25(56.8)	31(53.4)	35(71.4)	9(50)	24(85.7)	11.980	.018**
V3	27(57.4)	35(70)	37(80.4)	7(43.8)	11(61.1)	9.895	.042*
V4	29(55.8)	22(64.7)	41(75.9)	13(76.5)	6(100)	10.416	.034*
Immunization V1	68(94.4)	82(88.2)	58(100)	29(93.5)	29(93.3)	11.440	.022*
PMTCT info V1	69(95.8)	89(95.7)	58(100)	28(90.3)	15(100)	7.817	.099

* Statistically significant difference at $p < 0.05$, ** $p < 0.01$

All health care providers provided inadequate information (as low as 6.2%) on family planning to pregnant women with statistical significance difference in V3 and V4 visits ($p < 0.05$). More than 85% of information on smoking and alcohol were provided by midwives during visit one and there were statistical differences in all visits ($p < 0.05$). Importance of postpartum visit was not performed well by all HCP except health officers' who informed 100% of pregnant women during visit four and there were statistical differences in all visits.

Information on danger signs was given in a better way than most of information with the lowest 80.6% and highest 100% though there is statistical significant in visit one and four ($p < 0.05$). On birth preparedness information nurses provided the least information to pregnant women compare to other HCP and there was statistical significant performance difference was observed among the HCP in

all visits. Similarly, information on complication readiness, diploma midwives performed well (>89%) the rest health care providers provided information < 85% and there were statistical significant (p=.000) (p<0.05) in all visits. Further, all pregnant women were informed about signs of labour though the performance was below 85% in all visits that was given by degree holder nurses and diploma holder midwives. Whereas, the return schedule information was given properly by all HCPs.

Association of drug provision and type of Health care providers

The least percentage of prophylaxis drugs that was prescribed to pregnant women was Anthelmintic (Mebendazole) and the highest was Fefol which was mainly given by Midwives and health officers during visit one and there were statistical significant in all visits (P=.000, .022, .001) P<0.05 except visit one. Regarding TT vaccine all HCP except nurses vaccinated pregnant women in both visit one and two (Table 7).

Table7: Percentage of women who received different Drugs during observed ANC visits and Health care providers in public health center Addis Ababa, 2013 (n=806)

Variable	Diploma Nurse n=9 Yes%	Degree Nurse n=8	Diploma Midwife n=9	Degree Midwife n=6	HO n=3	X ²	P-value
Fefol V1	69(95.8)	89(95.7)	50(86.2)	30(96.8)	15(100)	8.026	.091
V2	38(86.4)	44(75.9)	48(98)	18(100)	28(100)	24.779	.000**
V3	35(74.5)	35(70)	42(91.3)	15(93.8)	16(88.9)	11.483	.022*
V4	44(84.6)	20(58.8)	28(51.9)	12(70.6)	6(100)	19.504	.001**
MebendazoleV3	10(21.3)	6(12)	0	1(6.2)	7(38.9)	23.611	.000**
V4	16(30.8)	5(14.7)	13(24.1)	2(11.8)	4(66.7)	9.505	.050
TT vaccine V1	59(81.9)	75(80.6)	55(94.8)	30(96.8)	15(100)	16.153	.003**
V2	24(54.5)	38(65.5)	43(87.8)	18(100)	24(85.7)	28.434	.000**

* Statistically significant difference at p<0.05, **p<0.01

Association of clinical examination and type of Health care providers

Weight, Blood pressure and fundal height Measurement were almost done for all pregnant women by all health care providers. Whereas, measuring pulse rate were taken by degree nurse than others yet highest percentage were 27% and using Fisher Exact test statistical significance observed between health care providers in all visits ($p=.000$, $.000$, $.030$ and $.017$ respectively $p\text{-value}<0.05$). Almost none of the health care Providers take respiratory rate and temperature of the pregnant women.

Head to toe, vaginal examination and breast examination was rarely performed by all HCP though there was significant statistical difference among them ($P<0.05$). Further, checking conjunctiva for pallor were performed $>85\%$ by all health care provider in visit three and for other visits the performance varied some above and other below 85% like fetal presentation checked. Oedema was checked below the set point by all health care providers except degree nurses and is statistical significance both visit three and four.

Table 8 depict that abdominal examination done to pregnant women fetal heart beat(FHB) listening and presentation checked by majority of health care professionals above 85% and variation observed among and within health care providers for instance, diploma nurses listen FHB 72% and 70% in visit two and three whereas 100% in visit four and there was statistical significance.

Table8: Abdominal examination done for observed pregnant women during the four ANC visits and Health care providers in public health center Addis Ababa, 2013 (n=806)

Variable	Diploma Nurse n=9 Yes%	Degree Nurse n=8	Diploma Midwife n=9	Degree Midwife n=6	HO n=3	X ²	P-value
Fundal height measured V2	37(84.1)	55(94.8)	48(98)	15(83.3)	25(89.3)	8.566	.073
V3	46(97.9)	50(100)	46(100)	15(93.8)	17(94.4)	5.530	.237
V4	52(100)	32(94.1)	53(98.1)	17(100)	6(100)	4.743	.315
FHB ListenV2	32(72.7)	47(81)	47(95.9)	15(83.3)	24(85.7)	11.007	.026*
V3	33(70.2)	40(80)	46(100)	15(93.8)	15(83.3)	23.585	.000**
V4	52(100)	30(88.2)	43(79.6)	17(100)	6(100)	20.923	.000**
Fetal presentation checked V3	32(68.1)	40(80)	46(100)	15(93.8)	15(83.3)	25.272	.000**
V4	51(98.1)	30(88.2)	42(77.8)	17(100)	6(100)	17.298	.002**

* Statistically significant difference at $p < 0.05$ *, $p < 0.01$ **

Association of Laboratory investigation and type of Health care providers

Table 9 showed that all laboratory investigation done during first visit were requested above 85% by all health care providers except stool exam highest performed were 65% by diploma midwives and statistically significant. On the other hand, Hemoglobin for visit four, urine for visit two to four and stool exam during visit one and two were performed below 85% and a significant difference ($p = .001$) was observed in visit one between health care provider performance.

Table9: Laboratory Investigation done for observed pregnant women during the four ANC visits and Health care providers in public health center Addis Ababa, 2013 (n=806)

Variable	Diploma Nurse n=9 Yes/ %	Degree Nurse n=8	Diploma Midwife n=9	Degree Midwife n=6	HO n=3	X ²	P-value
Hgb checked V1	71(98.6)	92(98.9)	58(100)	31(100)	15(100)	1.998	.736
V4	7(13.5)	5(14.7)	13(24.1)	0(0)	3(50)	12.127	.016*
Urinefor albumV1	69(95.8)	88(94.6)	58(100)	30(96.8)	15(100)	6.115	.191
Urinefor infec.V1	67(93.1)	88(94.6)	58(100)	31(100)	15(100)	10.192	.037**
V2	21(47.7)	12(20.7)	14(28.6)	6(33.3)	19(67.9)	21.921	.000*
V3	20(42.6)	15(30)	11(23.9)	5(31.2)	13(72.2)	14.951	.005*
V4	21(40.4)	5(14.7)	24(44.4)	2(11.8)	4(66.7)	17.045	.002*
Syphilis Test V1	71(98.6)	93(100)	58(100)	31(100)	15(100)	2.646	.619
HIV test V1	72(100)	93(100)	58(100)	31(100)	15(100)	-	
Blood Group V1 &RH	64(88.9)	85(91.4)	58(100)	31(100)	15(100)	16.563	.002*
Stool examV1	18(25)	30(32.3)	38(65.5)	5(16.1)	5(33.3)	31.749	.000*
V2	1(2.3)	4(6.9)	3(6.1)	0(0)	3(10.7)	4.555	/.336

* Statistically significant difference at p<0.05, **p<0.01

Figure 4 illustrates health care providers' FANC performance by five FANC components. Providers on average had their highest performance in comprehensive history taking and their worst performance in clinical examination. Compared to health care providers category, all were not performed to the average cut of points (85%) in assessed FANC components except in comprehensive history taking: The diploma and degree holder nurses only performed 66.5% and 67.2% of the basic FANC tasks respectively, diploma holder midwives performed well than degree midwives 74.6%, and health officers performed better than the other HCP 79%.

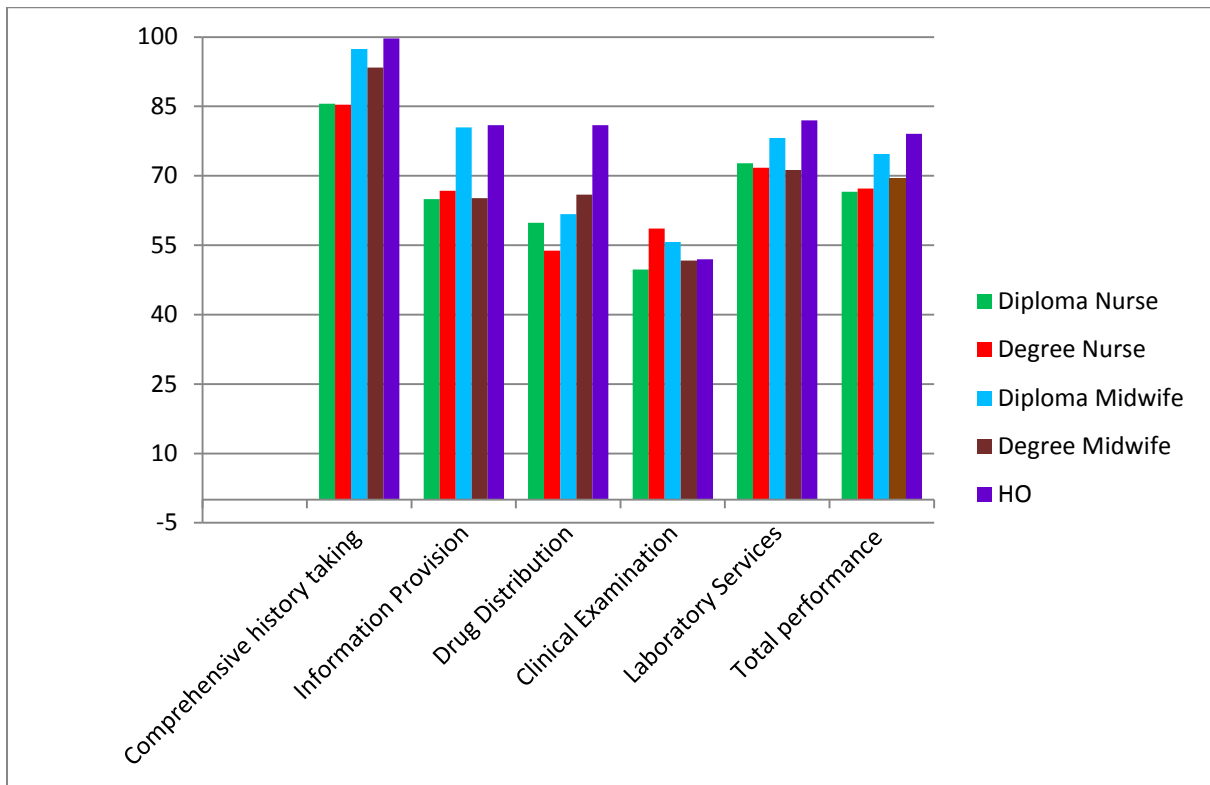


Figure 4: Average total ANC Performance percentage of Health care Providers by FANC components

II. Facility assessment

This section assessed the availability of human resource, essential equipment, supplies and appropriate infrastructure to offer focused ANC. Ten health providers, six with head of the ANC and with four ANC staffs were interviewed using structured checklist to assess availability of resources for implementation of FANC. During the assessment period, the visited health centers were staffed by 7 doctors, 96 Health officers, 290 Nurses and 77 Midwives and 124 other health professionals, 5 health officers (of whom 3 of them have midwifery background), 23 Nurse and 6 Midwives were assigned in ANC.

Availability of facilities, supplies, and equipment was assessed in all targeted (10) health centers. Regarding infrastructure each of the facilities had electricity, water supply and toilet. In addition there were generators in all assessed health centers except Arada health center. Space was available in the waiting area in all health centers but there is congestion in Selam, Kirkos and T/haimanot health center which have no adequate space for pregnant women.

During observation time some of the pregnant women were waiting in the health center veranda, and/or in the EPI waiting area. Separate ANC examination rooms were available in all assessed health centers nevertheless in half of the health centers the rooms were not wide enough to move around and to accommodate another examination bed.

About privacy there was visual privacy in all assessed but there is no audio privacy at T/haimanot, Kirkos, and Selam health centers. In one of the health center (Selam Health center) the PI while waiting outside for the health professional for in-depth interview, the health provider was revealing the positive result of HIV test to one of the ANC client and was clearly heard.

In addition, during the data collection all health centers have most of the equipment's and laboratory reagents that are necessary for ANC except thermometer in all health centers and reagent for Hgb, blood group (Saris and Arada) and pregnancy test (Kolfe HC). Drugs for ANC were also available in all health centers yet magnesium sulphate was available only in two HCs (Selam, Addis Ketema). With the exception of, management protocol on selected obstetric topics; all other ANC register,

revised FANC cards (though there is variation with the 2010 management protocol in some of the performed tasks) were adequately available and used by the health professionals (Annex I, Table 1).

There is some variation in the procedure/ task performed between the 2010, management protocol on selected obstetric topics and FANC card. For instance, in clinical examination measuring Pulse, temperature, respiratory rate and edema checking is in the 2010 management protocol while it is not included in the FANC cards. In addition, in the 2010 protocol iron tablet for prophylaxis is written in all visits whereas in the FANC card is written V1 and V2 only and tetanus toxoid also variation is observed in laboratory examination where urine test for infection is requested in all visits in the protocol while in the FANC card is limited to V1 and V4 only similar observation seen for urine test albumin.

As shown in the table 10 the overall availability of infrastructure, essential equipment's and drugs supplies were adequately found at the assessed health centers though equipping all HCs with necessary resources is required.

Table 10: Mean ANC resource score at public health centers Addis Ababa 2013 (n=10)

Availability of:	Mean score of the HCs
Infrastructure for FANC practiced (Score 0-8)	7.9
Essential FANC drugs (Score 0-5)	4.2
Essential equipment (Score 0-6)	4.9
Essential laboratory supplies (Score 0-8)	7.6
Guidelines/reference materials (Score 0-3)	2.7
Total score (0-30)	27.3

III- Health Care Providers Experience on the implementation of Focused Ante Natal Care (FANC)

1. History Taking

When health care providers were asked on history taking during in depth interview, most of them said as they normally ask personal, social, past medical, past obstetric, past surgical histories and current complaint of the pregnant women. As suggested by the following quote:

“ I usually asked pregnant women starting from the identification, address, social history like marital status and education background, gravida ,para, number of abortion and all past obstetric history past medical and surgical history... and also if she has any addicted habit on smoking, alcohol, chat chew and why she came to ANC as usually they (pregnant women) usually came when they sick or worried about their health.” Midwife from Selam HC

2. Physical examination

As In-depth interviews with HCPs depicts that there is variation among HCPs knowledge and experience on physical examination. Majority of informants did not mention the significance of measuring temperature, respiratory and pulse rate and also the necessary of vaginal examination as part of physical examination and do not practiced it in their routine ANC activity. However, almost all informants revealed that abdominal examination; identify fetal growth, presentation and listening fetal heart beat are the basic part of physical examination. Besides, two of the informant said that they start from observation while the women is getting in then take blood pressure and weight and check for sign of anemia. And four of the informant replied that they start from head to toe including breast and abdominal examination.

“As to me physical examination started from observation while the women is getting in her walking facial expression then after taking the history I will do examination from head to toe starting from hair, face here I check the eye for anemia.... Neck, chest for breast examination, abdominal examination see presentation ...leg for edema and also observe her personal hygiene.” Midwife from Selam HC

Though all informants know the basic knowledge of physical examination, the entire examination list may not be practiced in to their daily work due to work over load and staff shortage.

One nurse confirmed that

‘‘In this health center we usually focus on abdominal examination and check conjunctiva for sign of anemia though we should do all relevant examination pertaining to pregnant women; practically we do not implement it due to work overload.’’ (Nurse from woreda 3 HC)

3. Laboratory Investigation

Results from in-depth interviews with the health workers also revealed that all informants identified laboratory investigation that was done by traditional ANC and needed by pregnant women such as blood test for syphilis and anemia, blood group and Rh factor including HIV test, urine exam for albumin and infection. In addition health providers also do investigation for hepatitis B and C to all pregnant women’s as it is provided freely in most of the assessed health center though is not included in the FMOH guideline as part of the procedures.

Whereas laboratory investigation included or modified in the FANC as it was mentioned by few of the informants. An example to this situation is demonstrated by the quote below:

‘‘ In this health center we usually order hemoglobin, blood group and Rh factor, urine for albumin and microscopic examination, VDRL for syphilis and HIV test every three month. In addition depending on the pregnant women health condition and to treat infection we do also request stool examination.’’ Nurse form Arada HC

Further, the health providers added that there were some challenges when some reagents were not available and fail to bring their partners for testing though all pregnant women are volunteers for HIV testing. Most of pregnant women have no courage to convince due to fear of quarrelling and separating with their husband since most of them are economically dependent.

In addition informant explained that they commonly ordered ultrasound to most of pregnant women’s during fourth visit and during first visit for those pregnant women who do not know their last menstrual period though the service is not available in most of the assessed health centers and

most of the women cannot afford it. However, as per one informant, there were some efforts done by one health center to minimize problem related to ultrasound expense.

''Now a days it is common to do ultrasound examination for pregnant women in order to be sure of gestational age as most of the women do not remember the date of last menstrual period and also to ascertain the presentation of the fetus . But most women do not afford it as they go to private health facilities and the examination is expensive. We(health provider working in ANC) raised the issue and discussed with the HC management then the health has center bought one ultrasound, hired part time radiologist and we provide the service with less cost almost reduced by 50% from the private''.
(Midwife from Kirkos HC)

4. Drug and vaccination

Regarding drug and vaccination provided to pregnant women, most of the informant mentioned tetanus toxoid, fefol and ART are provided for eligible clients whereas only three informants mentioned tetanus toxoid and both fefol, anthelmintic ART are provided for eligible clients as part of prophylactic drugs. This shows that most of the HCPs do not have full information antihelments which is recently added in the FANC.

'' Normally, I ask the pregnant women if she took tetanus toxoid before or not then if she took the vaccination and I will check if the card is with her and if not I will advise her to bring Auuum...drug I usually prescribed only fefol and ART for HIV positive women.'' (Health Officer from Saris HC)

5. Health education and counseling

During in-depth interviews it was realized that most of the health providers have health education and counseling knowledge on danger sign, birth preparedness and complication readiness, on nutrition, personal hygiene, TT vaccination, PMTCT and encourage partner testing and schedule for next visit. Few of the health providers are aware of breast feeding, harmful traditional practice, rest, and family planning information. Among few informants who stated all components of Health education and counseling is mentioned as follows:

'' I always provide the significance of ANC and information on HIV testing, danger sign, personal hygiene, about nutrition and food hygiene importance of tetanus toxoid, birth preparedness ...family planning , about harmful traditional believes and advice to come regularly up on their schedule.''

Nurse from Kolfe HC

In addition, the HCPs were asked about their experience and how their knowledge transfer in to practice. Three of informant explained as they regularly provide written information particularly on birth preparedness and danger signs to ANC clients and encourage their clients to discuss and reflect with their family members. However one informant said that some pregnant women rely on the traditional information that was provided by closest family and neighbors that hampers the health provider information.

Nurse from T/Haimanot HC indicated that

‘‘Although we gave health education on different topics to ANC clients sometimes they do not practice it. I remembered one pregnant woman came to our health center for her regular visit when I checked her blood pressure it was raised and she had also edema on her hand and legs. When I asked her why she did not come on time when she saw the sign, she replied that ‘‘my neighbor’s told me that this is normal during pregnancy and does not need to go to health center’’. Then I sent her to check her urine and the result showed albumin +3 then I referred her to hospital. ‘‘

Consequently, the informants were asked if they have faced challenges while they have been providing ANC service some of their challenges were mentioned as follows: of lack of space for waiting and examination room, which is affecting privacy, shortage of staff, Shortage laboratory reagents and lack of collaboration between druggist and HCP who work in ANC.

as midwife from Selam HC mentioned it

‘‘ In our health center we prescribed antihelmentics to pregnant women during third and fourth visits as per the FANC guideline; however, the pharmacist are not willing to give the drug to pregnant women. The pharmacists argue that antihelmentics are contraindicated during pregnancy though we tried to convince them according to recent training that allows us to do so. Therefore, I suggest to disseminate the FANC guideline to all health professionals especially to the head of the health centers and druggist so that they will agree with the evidence based practices.’’

Finally, majority of informants recommended that expansion of ANC rooms should ensure privacy, on job training for providers to able to practice properly the FANC by all assigned health care providers .Furthermore, assigning adequate staff as the work demands , providing laboratory reagents and thermometer on continuous base so as to improve the FANC services.

6. Discussion

This study examined the implementation of focused antenatal care in Addis Ababa public health centers. Assessing implementation of National Protocol on Selected Obstetrics Topic including FANC by HCPs is an essential first step to identifying gaps in Antenatal care services in the study setting. Understanding the factors influencing full implementation of the guideline is essential for determining how to improve antenatal care provision so that women have positive pregnancy experiences and birth outcomes.

This section examines the performance of 35 HCPs (diploma holder midwives and nurses each 9, degree holder midwives and nurses 6 and 8 respectively and 3 health officers) in relation to five components of FANC. Interpretation of the result needs caution as health officers were assigned only in three of the ten assessed health centers and out of three health officers two of them have diploma in midwifery and this may affect to differentiate the performance of health officers from diploma midwives.

Unlike to the WHO recommendation and the National Protocol on Selected Obstetrics Topic that first visit should occur in the first trimester, around or preferably before week 12 of pregnancy (7, 19). the present study showed a pattern of late arrival; only 32% of observed women had obtained antenatal care during the first trimester of their pregnancy which is similar with EDHS 2011 31% visit earlier less than four month in urban and Kenya study 14% (24). While the percentage of initiation of ANC visit at first trimester is higher than the study conducted on quality of Antenatal care in Addis Ababa (the research showed that from 16% of interviewed mothers only 3% of them were appeared the first time) (18). This implies that there is improvement in the service uptake as per the standard that enable to take potential measures for some complications such as anemia though still needs more awareness creation and community mobilization.

This study showed that in visit one history for more than 97% of observed ANC clients were taken even if history of current complaint was asked less in all visits while women's information was recorded in the assessed health facility register and on women's ANC card properly.

Regarding history taking component of FANC most of the informant has good knowledge and no much difference among health providers. Whereas, history of current complaint in visit two and three showed that the performance of nurses is below the cut of point (85%) this might be due to work overload and also showed statistical significant difference among health care providers ($P=.001$ and $.000$) respectively.

This finding is supported by the Nigeria study that focused on the knowledge of the health care providers on FANC indicated that the package is accepted but not practiced by 42% of the respondents (35) and similar with Sudan(2011) and Tanzania studies where obstetric history were taken more than 92% and higher than Tanzania study in social history(58%) (38, 30). Beside this, this research result is higher than Ghana, Kenya and South Africa studies where only seven (24%) of HCP asked full enquiry about previous pregnancy history in Ghana (39) partial histories taken in Kenya and South Africa (34, 36). This implies comprehensive history taking component was done properly to the majority of ANC attendant although the comprehensive history taking knowledge of nurses should be supported by practical skills to improve the implementation of FANC.

Concerning information provision and counseling, this research identified that more than 85% information provision on Immunization, PMTCT, return schedule and danger signs in pregnancy were provided though there was statistical significant seen on immunization and danger sign ($p<0.05$). Whereas, birth preparedness, complication readiness, breast feeding, smoking and alcohol and importance of postpartum visit ranged between lowest at 33% and highest at 68%.

This research finding shows higher performance of HCPs in most of health information provision topics than the previously done studies in Africa including Ethiopia. Study done in quality of ANC in Addis Ababa revealed that time allotted for health education and counselling during ANC is minimal, with some women not receiving any counselling from their providers (18). Likewise, recent study in Adama town suggests around 20% , 28% and less than a third of clients were informed on family planning after delivery, breast feeding and danger signs topics respectively (17).

This research finding is parallel with Tanzania and the South Africa Kuwa Zulu – Natal studies showed that not as many women as planned received counseling on different topics and women's preferences for a home birth and lack of planning for delivery are reinforced by the failure of health

care providers to consistently communicate to all women during routine antenatal visits (42, 36). But this research finding is higher than the study done in two countries (Burkina Faso and Uganda) where information on danger sign was given for only 7% and 2% of women respectively (31). Also higher than Tanzania study that maximum percentage of information provision was on birth preparedness (50%) and least on danger sign (3%) (30).

In addition, this study identified varied practice on provision of information among health care providers as statistical significance differences ($p < 0.05$) showed in ten tasks out of twelve stated under information provision and counselling. There was also a difference by type of visit may be due to work overload and knowledge difference as revealed in the in depth interview. Our research is similar to other studies done in Africa (Tanzania, Uganda and Burkina Faso) and another Tanzanian study in the Kilombero and Ulanga Districts, Morogoro Region in south-eastern Tanzania that showed delivery of antenatal care services to pregnant women varied widely (31, 30) .

The above stated studies were carried out to see the feasibility of FANC at the beginning of FANC introduction and this may be the reason for low performance. In addition, these studies showed that a FANC approach is acceptable by HCPs though it is difficult to implement efficiently due to inadequate resources (30, 31 and 39). Although this research finding is higher than previous studies ANC clients were not adequately informed as per the standard which affects the proper utilization of skill birth attendance and decreases the ability to identify complication during pregnancy on time.

One of the purposes of antenatal care is to screen for signs of illness or other complications that may occur during pregnancy and also alert the woman to seek medical attention when the condition appears (4).

As this research finding revealed that all laboratory investigations were done during first visit. All health care providers had requested laboratory investigations to more than 89% of pregnant women however, stool exam and urine test for infection for the subsequent visit was least requested.

This finding has consistent result with other research in Kenya where significantly more clients received laboratory investigations (34). In the contrary poor performance in all laboratory tests due to irregular supply of reagents were reported (30, 31, and 39). Although our study finding revealed

there was better performance because of the availability of reagents in most of the health centers; poor performance observed for some of the laboratory investigation such as stool and urine test for infection and this may be due to the HCPs guided by the FANC card in which stool exam is not stated also lack of knowledge and/or commitment of HCPs to exercise evidence based practices by the health care providers.

This research showed the practice of clinical examination by health care providers was adequate with more than 85% in the following areas: Weight, blood pressure, fundal height measurement, fetal presentation; fetal heart, and examining the client for anemia and edema. Providers performed these procedures in 80–100% of the visits were observed. Similar finding were reported by Workinesh (2006), M. Sarker et al. (2008), Gross, Karin et al (2011) and from Sudan Study done on the quality of ANC (2011) showed HCPs performed above 80% on vital sign measurement and abdominal examination to assess the condition of the fetus (18,30,31,and 38).

Almost none of the health care Providers take respiratory rate and temperature of the pregnant women. Similar finding were reported in other Africa countries studies and in Armenia (30-35 and 39). Head to toe, vaginal examination, breast examination and pulse rate also are rarely performed (below 52%) by all health care providers and statistical difference p -value < 0.05 was observed; our finding showed better performance than above mentioned studies.

The selective performed clinical examination is explained by the difficulty in easily accepting the newly added evidence based procedure though half of the informants' were trained on BEmNOC /FANC and also due to lack of medical equipment such as thermometer and due to work overload of HCPs as revealed as revealed by the facility assessment check list and in-depth interview during data collection time.

The shortage of health providers has negative effects on the quality of antenatal care and also increase stress on the existing staff. It is possible that heart rate, temperature, and respiratory rate, are not as valued as other clinical examination that does not have consistent medical recorded keeping in the ANC card as revealed in Woreda 3 health center. In this health center blood pressure was checked using digital blood pressure apparatus which measured both blood pressure and pulse

rate whereas, the health provider do not recorded the pulse rate in the ANC card. This shows that unless the adopted FANC procedures written in the management protocol is not disseminated or included in the FANC card it may not be practice.

Concerning drug provision the findings of the current study shows that the health care providers prescribed fefol ranging from 67.5% (visit four) to 94 % (in visit one). Apart from tetanus toxoid injections, health care providers failed to carry out antihelmentics drug distribution as it accounts only 13% and 25% of the observed pregnant women in visit three and four ANC session. This is due to lack of knowledge on the importance of provision of antihelmentics drug by some of the informants and lack of commitment to practice new tasks added in the FANC and also as revealed from the in-depth interview in some HCs another challenge also mentioned by informants that though the health care provider prescribed antihelmentics to pregnant women there is resistance from the pharmacist and this discourages the health care providers not to prescribe according to the FANC guideline.

The percentage of drug provision of this finding is higher than the Addis Ababa study (18) where 35% of clients were given treatment and advice on medication and the Tanzania study where Iron and mebendazol were provided to ANC clients 6% and 11% respectively (30). This study finding is also agreed with study done in Ghana, and Kenya findings. In Ghana study most of the prophylaxis distributed to the pregnant women was iron and tetanus toxoid vaccine was also provided to all (39). A study from Kenya revealed that over half of the clients were given iron/folic acid during all visits and health workers explained its use (34).

Consequently, this study identified the following challenges in drug provision component of FANC: knowledge gaps among HCPs especially those who do not received /BEMnOC/FANC training, lack of commitment and also lack of work collaboration from pharmacists. Thus challenges affect the benefit of pregnant women from accessing evidence based care and full implementation of all FANC components.

WHO recommended that the first visit should take 30-40min, 2nd visit 20 min, 3rd visit 20 min and 4th visit not stated (7). This study revealed that average duration for visit one, visit two and three was 19minutes, 11 minute and 12 minutes respectively. While some difference exists among health care providers that diploma holder nurses and midwives adhere the recommendation with 20.7% and 19.6% pregnant women in visit one and degree midwives and health officers spent more time in line with the WHO recommendation than other professional in visit three and four.

This finding is slightly higher from previously conducted studies in Africa. A study done in three African countries (Burkina Faso, Uganda and Tanzania) revealed that the duration of first visits was <15 min and health workers spent even less time in subsequent visits in all three sites (31). Similar finding revealed by another study (2004) done also in Tanzania(37).

This might be due to work over load as some of informant explained during in depth interview. Hence this may have an impact on the quality of care that the pregnant women received especially on the information provision which is the primary goal of ANC that contribute to the disease prevention and health promotion activity that in turn boost the pregnant women health seeking behavior during danger time and preparedness of women's for institutional delivery.

Regarding Facility assessment, although most of the health facilities have basic equipment and supplies; few of the facilities had inadequate equipment, small stock out of reagents, and limited staff compare to number of their clients that could affect quality of care. The findings of the current study accords with studies done in some African countries, which showed that although the FANC is feasible to practice and get acceptance by both health providers and the client; it is not fully implemented due to inadequate staff training and shortages of equipment and supplies (30,36and 39).

The facility assessment in this study on the availability of privacy of ANC examination and counselling room indicates that, there was visual privacy in all health centers but there is no audio privacy at three health centers. This result might be explained by the fact that the PMTCT counselling room and ANC examination room was separated by wooden material which easily transmits sound and may has implication in loosing confidentiality during the provision of HIV test result to the clients. Further, from observation and qualitative result of this study with the exception

of, management protocol on selected obstetric topics; all other ANC register, revised FANC cards were adequately available and used by the health professionals. This shows that guidelines are not utilized as intended by health care providers as all procedure/tasks are not included in the FANC cards. This finding is in agreement with other studies (18, 30 and 35).

Generally, this study showed that the HCPs did not meet the average cut of points (85%) as the finding shows that highest scored by health officers (79%) and least by nurses (67%). The variation among health care providers might be due to lack of training, stock out of reagents in few HCs; lacks of medical equipment's, limited staff, lack of work collaboration mainly on the provision of drugs and over work load. However, our finding compared to other studies done in Ethiopia and elsewhere the performance of the HCPS was founds twice as other studies finding (18, 32 and 33).

7. Strength and Limitation of the study

Strength of the study

- Triangulation of quantitative and qualitative methods the methods is the major strength this study conceives.
- Cover all the components of Focused Antenatal care practice components

Limitation of the study

- The presence of an observer might have influenced the outcomes positively owing to indirect and direct actions.
- The study was conducted in an urban area and findings cannot be generalized to rural setting.

8. Conclusion

- HCPs have adequate knowledge on comprehensive history taking and well implemented in all ANC visits.
- Most of the HCPs stated tetanus toxoid and fefol as prophylaxis which consistent with their practice. However, only few of HCPs could prescribe anthelmintic prophylaxis.
- In clinical examination, though all the HCPs were able to mention most of the procedures, the practice is missed due to work load and also over looked of some procedures such as respiratory rate, temperature and pulse rate, vaginal examination and breast examination.
- All necessary laboratory investigations were requested by all HCPS in visit one. However, gaps were identified among HCPs on their practice in the subsequent visits.
- Concerning information provision and counselling, information on immunization, PMTCT, danger sign and return visit were practiced by all HCPs. While, different practices among HCPs were observed in ten out of twelve tasks.
- Though none of healthcare providers met the 85% performance cut of points; when scores are broken down by category of health care providers HO scored 79% which was the maximum point.
- Health care providers did not spend adequate time as per the WHO/National FANC guideline for each visit and this may affect the full implementation of all FANC components especially prone to shallow health information and counseling which is at the center of FANC.
- Adequate equipment, supply and drugs that help the implementation of Focused ANC were available in most of the assessed Health Centers.

- Majority of the interviewed health care providers were not informed about the availability of management protocol on selected obstetric topics that was developed in 2010 by the Federal Ministry of Health and also management of Focused ANC poster was not posted in more than half of the assessed health centers.
- Majority of the interviewed health care providers do not practice the recent evidence based procedures that was incorporated in management protocol and seem to continue working as traditional ANC as revealed from the study though more than half of the interviewed HCPs were trained either on FANC or BEmNOC training and this may be due to over load of work, lack of work collaboration in the provision of drugs. This in turn compromised the quality of service provided to pregnant women.

9. Recommendation

At policy level

- Update the 2010 National management protocol on selected obstetric guidelines for antenatal care in line with the revised PMTCT guideline then revise the FANC card accordingly.
- Emphasis should be given in curriculum development to allot adequate time to FANC topics for all health professionals providing maternal and neonatal health care services.

At Programme level

- Disseminate the updated National management protocol on selected obstetric topics to health centers and all health professionals to practice it.
- Close monitoring and supportive supervision should be done to ensure full implementation of Focused ANC thereby to increase positive outcome of pregnancy.

At Facility level

- The knowledge of the interviewed HCPs on FANC is good and it has to be continued through in- service training to those untrained staffs who assigned in the ANC to have consistency in the implementation of Focused ANC and increase the quality of ANC service.
- Equip those few health centers that have inadequate supply and equipment's with appropriate resources and ensure continuous availability of drugs and reagents relevant to antenatal care.

For researchers

- A study of the same nature to be replicated in other regions of Ethiopia

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Annexes

Annex I: Table 1 Availability of supplies, equipment and drugs at public health centers Addis Ababa 2013 (n=10)

	Available and satisfactory	Available but not satisfactory
Physical Facility	N	N
Generator	9/10	0
examination couch in ANC room	10/10	0
sufficient light source in ANC room	10/10	0
Space available in the waiting area	7/10	3/10
Examination area	5/10	5/10
Toilet	10/10	0
Privacy	7/10	3/10
Infection prevention	10/10	0
Equipment		
Screen	9/10	0
Weighing scale (adult)	10/10	0
Sphygmomanometer	10/10	0
Stethoscope	10/10	0
Foetal scope	10/10	0
Thermometer	0/10	0
Laboratory supply		
Haemoglobin	8/10	0
Urine dip test for glucose	10/10	0
Urine dip test for albumin	10/10	0
HIV testing	10/10	0
Blood group	9/10	0
Syphilis	10/10	0
Pregnancy test	9/10	0
Microscopic urine test	10/10	0
Drugs		
Fefol	10/10	0
Antimalarial tablet	9/10	0
Anti helminthics	10/10	0
TT vaccine	10/10	0
Magnesium Sulfate	3/10	0
Guidelines/reference materials		

Revised ANC cards	10/10	0
ANC register	10/10	0
Management protocol on selected obstetric topics	0/10	0

Nominator-number of HC with supplies /equipment, Denominator-number of HC surveyed

Annex II: Information sheet for Health Professional (English version)

You are kindly invited to participate in this study, which involves Health professional working at Antenatal care and all mothers attending Antenatal care service of public health center in Addis Ababa. The aim of this study is to assess the implementation of Focused Antenatal Care which can be influenced by knowledge and experience of health professionals, availability of drugs, supplies, equipment's and adequate space (room). Therefore this study will be important by giving evidence on the practice of Focused Antenatal care in the study area.

- a. Risk and discomfort: almost there will not be any risk and discomfort related with data collection.
- b. Expected benefits: You will not get special and direct benefit from this study .your contribution is very important for the effective implementation of FANC. Hence, the finding of this survey will benefit others pregnant women in the future
- c. Confidentiality: All your personal information collected for the purpose of the present study will be kept confidential.
- d. Compensation: No compensation will be provided by participating in this study.
- e. Termination of the study: Participation in the study is voluntary, and refusal to participate involves no penalty or loss of benefits to which you are otherwise entitled. The study participants have a right to
 - Keep hold information
 - Decline to cooperate in the study

I would also like to inform you that this study is approved by School of Public Health research, ethical Review Committee, Addis Ababa University, if you have any question here is my contact address:

Aster Berhe
School of Public Health
Health science college, Addis Ababa University
Tel: 0911 14 4214

Annex III: Consent (English Version)

This study includes all health professionals working in Antenatal clinic in public health centers, intended to assess the knowledge and implementation of Focused Antenatal in Addis Ababa.

Hello! I am _____ and working here in Addis Ababa for a research undertaken by Addis Ababa University-School of Public Health. We need to get your consent to participate on this study; it's your right to decide to participate/not to participate in this study. So, I request you to listen carefully what I am reading to you about the purpose and general condition of the study and tell me whether you agree or disagree to participate in the study.

The purpose of this study is to assess the implementation of Focused Antenatal care in Addis Ababa and to communicate the study results with concerned bodies to improve the Antenatal care services. The study will be conducted through in depth interviews. It might take 15-20 minutes. Your name will not be written anywhere in the questionnaire. I would like to assure you that all information you are giving is confidential. Except for the purpose of the study it will never be disclosed to the third party.

Your participation/non-participation or refusal to respond to some of the questions or interruption from the study is possible at any time and will not cause any effect on your future career/life.

If you have question regard to this study, you can ask immediately the interviewer or later the investigator Tel. 0911 144214.

Would you be willing to participate?

- 1. If yes.....continue interviewing
- 2. If no.....stop and thank the respondent!

Name of data collector _____ Signature _____ Interview Date _____

Interview guide Code _____

Name of supervisor _____ Signature _____ Checking Date _____

Starting time _____ Ending time _____

I- Health Worker In-depth Interview Guide

Date of interview:

Name of facility.....

Facility code number.....

Instructions: tick in the appropriate box for type of health worker being interviewed [√]

Health officer (HO)

Midwife

Nurse

A: Demographic data

1. Sex: Female [] male []
2. age in years.....
3. Religion
 - a. Muslim.....1
 - Orthodox.....2
 - Protestant.....3
 - Catholic.....4
 - Others (specify).....5

Level of Education

Diploma Nurse

Diploma Midwife

BSC Nurse

BSC midwife

BSC (HO)

How long ago did you receive midwifery training?

6. When last did you receive in-service in training?
7. What do you know about FANC? Is there FANC guideline?

B: Period of Experience

8. How long have you been working in antenatal ward?

C: Health workers Role in ANC

9. What role do you play in the care of maternity client?
10. In your opinion what type of provider should be in charge of antenatal care of a normal healthy pregnant woman in this health center?
11. What history do you take from antenatal mother who come to your clinic. Probe for the following;
 - a. Personal history
 - b. Social History
 - c. Family history
 - d. Medical history
 - e. Surgical history
 - f. Obstetric history
 - g. History of current pregnancy
12. What do you check when doing physical examination? Probe for;
 - a. Blood pressure
 - b. Weight
 - c. Pallor
 - d. Edema
 - e. Breast
 - f. Fundal height

- g. Fetal presentation
 - h. Listen to fetal heart sound
13. What laboratory investigation do you carry out? Probe for
- a. Hemoglobin
 - b. Blood group and RH
 - c. VDRL
 - d. Urine for: protein and Sugar
 - e. HIV testing
14. What prophylactic drugs and immunizations do you give?
- a. Iron tablets
 - b. Folic Acid
 - c. Anti-helminthic
 - d. Tetanus toxoid vaccine
 - e. ART
15. What information do you provide during education and counseling? Probe for
- a. Process of pregnancy and its complication
 - b. Diet
 - c. Personal hygiene
 - d. Danger signs in pregnancy
 - e. Exclusive breast feeding
 - f. Harmful habits e.g. drug abuse, smoking, taking traditional medicine
 - g. Plans for delivery
 - h. Schedule for next visit
 - i. Plan for postpartum
 - j. Effects of STI
 - k. Effects of HIV and STI

D Problems encountered when providing ANC

16. What problems do you encounter in assisting maternity clients? Probe for
- a. Equipment
 - b. Lack of transport/fuel
 - c. No wireless communication
 - d. Shortage of professional staff
 - e. Lack of essential drugs
 - f. Community attitudes towards health workers
17. At this health center, what time do you open and close the antenatal clinic
18. What is your comment on women's utilization of the antenatal services?

Thank you

Annex IV: Information Sheet (Amharic Version) for Health professional

የጥናቱ ተሳታፊዎች የሚጃቅ ቅጽ

በቅድሚያ በዚህ ጥናት እንዲሳተፉ ስንል በቅርብ ጥያቄያችንን እያቀረብን ጥናቱ በአዲስ አበባ በሚገኙ በሁሉም የህዝብ ጠፍ ጣቢያዎች ቅድመ ወሊድ ክትትል አገልግሎት ክፍል የሚኒሩ የጠፍ ባለሙያዎችና አገልግሎቱን የሚጠቀሙ እናቶችን ባጠቃላይ ይመለከታል። ጥናቱ በጠፍ ጣቢያዎች ቅድመ ክትትል አሰራር በተመለከተ ትኩረት ያደርጋል ። የነፍሰጤ ክትትል አገልግሎት አሰጣጥ የባለሙያዎቹ እውቀት የተሟላ የህክምና መገልገያ ቁሳቁስ በቂ የመመዘኛ ክፍል መሟላት ለስራው መሳካት አስተዋጽኦ ያደርጋል። ስለሆነም የጥናቱ ወጠት ለተሻለ የቅድመ ወሊድ እንክብካቤ በእጅጉ አስተዋፅኦ ይኖረዋል።

ሀ. ጉዳት እዚህ ጥናት ላይ በመተባበሩ ተሳታፊዎች ምንም ዓይነት ጉዳት አይደርስባቸውም

ለ. ጥቅም ይህ ጥናት በቀጥታ ለተሳታፊዎች የሚሰጠው ልዩ እና ቀጥተኛ ጥቅም ባይኖረውም ከተሳታፊዎች በሚገኘው ሚጃቅ ፖሊሲ አወጫችን በቅድመ ወሊድ ክትትል ፕሮግራም ላይ ያለውን አሰራር እንዲያወቁትና ሙከራ እንዲሾ ይጠቁማል።

ሐ. ሚኒስቴሩን ተሳታፊዎች ስማቸውን እንዲጠቅሱ አይጠበቅም። ተሳታፊዎች የሚሰጡ ሚጃቅ በሙሉ ሚኒስቴሩን ብቻ ይጠብቃል።

መ. ፈቃደኝነት ስለሚቋረጥ በዚህ ጥናት ውስጥ የመተባበሩ መብቶች ሙሉ በሙሉ በፈቃደኝነት ላይ የተመሰረተ ነው። በጥናቱ ለመተባበሩ ፈቃደኛ መሆን ወይም ራሱን ማገለል ይችላሉ። እንዲሁም በጥናቱ ባለመተባበሩ ምክንያት በአሁኑ ወይንም የወደፊት የህክምና እርዳታ ላይ ተጽእኖ አይኖርም። በተጨማሪም ይህ ጥናት ከአዲስ አበባ ዩኒቨርሲቲ ህብረተሰብ ጠፍ ትምህርት ክፍል ፈቃድ የሚሰጠው ይሆናል።

ለተጨማሪ ሚጃቅ ወይንም ጥያቄ ካልዎት በተጠቀሰው አድራሻ ዋናው ተመራማሪ ማገኘት ይቻላል።

ስም አስቴር በርሔ

አድራሻ፤ - የህብረተሰብ ጠፍ ትምህርት ክፍል

ጠፍ ሳይንስ ኮሌጅ አዲስ አበባ ዩኒቨርሲቲ

ስልክ ቁጥር ሞባይል 09 11 14 42 14

Annex V: Consent from (Amharic Version) for Health professional

የፈቃደኝነት ማረጋገጫ ቅጽ

እንደምን አደሩ/ዋሉ

እኔ ስሜ ----- ይባላል፡፡ በአዲስ አበባ ዩኒቨርሲቲ በህብረተሰብ ጤና ሳይንስ ትምህርት ክፍል ለሚረገው ጥናት ማረጋገጫ ሰብሳቢ ሆኜ እየሰራሁ ነው፡፡ ጥናቱን በተመለከተ አጠር ያሉ ጥያቄዎችን እጠይቃለሁ፡፡

ከጥያቄ በፊት ቀጥሎ የሚከተሉዎትን የጥናቱን ጥቅም አጠቃላይ ሁኔታ በእርጋታ ያደምጠኝና በጥናቱ ውስጥ በፈቃደኝነት መስተፍ ማረጋገጫ አለመረጋገጥን ይገልጻልኛል፡፡

የዚህ ጥናት ዋና አላማው የቅድመ ወሊድ ክትትል አሰራርን ለማየትና የአገልግሎቱ ተጠቃሚ የሆኑት ነፍሰ ጤና እናቶችን ስለ ቅድመ ወሊድ አገልግሎት አሰጣጥ ያላቸውን አስተያየት ለማወቅ ሲሆን ለእናቶችና ለህፃናት የሚረገውን እንክብካቤ ለማሻሻል ይረዳል ተብሎ ይታመናል፡፡

ቃለመጠይቁ ከ15 እስከ 20 ደቂቃዎች ሊወስድ ይችላል፡፡ በቃለመጠይቁ የምናካሂደው መቅረጻ ድምጽ በመጠቀም ነው፡፡ የእርሶ ስም በዚህ ቃለ መጠይቅ ላይ አይጻግም ስለዚህ የሚሰጡት ማረጋገጫ ማስጠንቀቂያ እጅግ የተጠበቀ ይሆናል፡፡ ተሳትፎዎን ሙሉ በሙሉ በእርሶ ፈቃደኝነት ብቻ የተመሰረተ ይሆናል፡፡ እንዲሁም በፈለጉ ጊዜ ወይይቱን ማቅረጥ ይችላሉ፡፡

ይሁን እንጂ የእርሶ ተሳትፎ በጣም አስፈላጊ በመሆኑ በጥናቱ እንደሚተፉ ተስፋ እናደርሳለን፡፡

ጥናቱን በተመለከተ ጥያቄ ካልዎት ወዲያው መጠየቅ ወይም የተመራራው ስልክ ቁጥር 0911-14 42 14 ደውለው መጠየቅ ይችላሉ፡፡ ስለዚህ በዚህ ጥናት ለመስተፍ ፈቃደኛ ናዎት?

አዎ ----- ቀጥሎ የተሳታፊ ፊርማ -----

ፈቃደኛ አይደለውም ----- አመለካኝነት ይጻፍሉ

የቃለመጠይቅ አቅራቢው ስም ----- ፊርማ -----
ቀን -----

የጤና ጣቢያው ስም / ኮድ ----- የመጠይቁ ኮድ -----

ቃለመጠይቁ የተጀመረበት ሰዓት ----- የተጠናቀቀበት ሰዓት -----

ለጠፍ ባለሙያዎች የተዘጋጀ የቃለመጠይቅ መግሪያ

ቃለመጠይቅ የተደረገበት ቀን -----

የጠፍ ጣቢያው ስም -----

የጠፍ ጣቢያው ኮድ -----

ቃለመጠይቅ የተደረገለት ባለሙያ የፓ ሚኒስት ያደርጉ

ጠፍ መኮንን () ሜሞሪያ () ነርስ ()

ሀ. ግላዊና ማህበራዊ መረጃ

1. የታ ሴት----- ወንድ -----
2. እድሜ -----
3. ሀይማኖት
 አርቶዶክስ ----- መስለም -----
 ፕሮቴስታንት ----- ካቶሊክ -----
 ሌሎች -----
4. የትምህርት ደረጃ
 ነርስ ዲፕሎማ -----
 ሜሞሪያ ዲፕሎማ -----
 ነርስ ዲግሪ -----
 ሜሞሪያ ዲግሪ -----
 ጠፍ መኮንን -----
5. የህክምና ትምህርትህን/ሽን መቼ ጨስክ/ሽ?
6. በስራ ላይ ያሉ ስለ ቅድመ ወሊድ ፣ ወሊድና ድህረ ወሊድ የሚያ ማዘጋጀት ስልጠና ወስደዋል ወይ?
7. ስለአዲሱ የቅድመ ወሊድ ክትትል አሰራር ምን ያህል ያወቃሉ?
 ለ. የአገልግሎት ዘመን
8. የቅድመ ወሊድ አገልግሎት መስጫ ክፍል ምን ያህል ጊዜ ሰርተዋል?
 ሐ. የህክምና (የጠፍ) ባለሙያው በቅድመ ወሊድ አገልግሎት ክፍል ወስጥ ያለው የስራ ድርሻ
9. በዚሁ ክፍል ያልዎት የስራ ድርሻ ቢገልፀልኝ?
10. በእርሶ አስተያየት ጠፍ ለሆኑት ነፍሰጠፎ እናቶች የቅድመ ወሊድ አገልግሎት በየትኛው ጠፍ ባለሙያ ለሰጥ ጥሩ ነው ይላሉ፡፡
11. በቅድመ ወሊድ ክትትል የመጠኑን ነፍሰጠፎ እናቶች የጠፍነት ሁኔታቸውን ለማወቅ ምን አይነት መረጃ ይጠይቃሉ፡፡
 ግላዊ ፣ ማህበራዊ፣ የቤተሰብ ፣ የወሰን ደዌ እና የቀዶ ጥገና መረጃ? የወሊድ ታሪክ ና የአሁኑ እርግዝና ሁኔታ
12. ለነፍሰጠፎ እናቶች ምን አይነት የአካል ምርመራ ያደርጋሉ?
 ሀ. የደም ግፊት መለካት
 ለ. የአካል ክብደት መወዛን
 ሐ. የደም ማከስ ምልክት እንዳለ ማየት
 መ. የአካል እብጠት መኖሩን ማየት

- ሠ. የጠቅ ምርመራ ማድረግ
- ረ. የፅንሱን እድገት ለማወቅ የእናትየዋን ሆድ መላካት
- ሰ. የፅንሱን አቀማመጥ ማጽኑ
- ሸ. የፅንሱን የልብ ትርታ ማዳመጥ

13. ለነፍሰጤ እናቶች ምን አይነት የቤት መከራ /ላብራቶሪ/ ምርመራ ያዛሉ?

- ሀ. የደም ማስ ምርመራ
- ለ. የደም አይነት ምርመራ
- ሐ. የአባላዘር /ቁጥኝ/ ምርመራ
- መ. የሸንት ምርመራ
- ሠ. የኤች አይቪ ምርመራ

14. ለነፍሰጤ እናቶች ምንአይነት የክትባት እና ከበሽታ መከላከያ መድሀኒት ይሰጣሉ ?

- ሀ. የደም ማስ ኪንን
- ለ. የአንጀት ትላትል ኪንን
- ሐ. የመጋጋቻ ቆልፍ ክትባት
- መ. ኤ.አር.ተ

15. ለነፍሰጤ እናቶች ምንአይነት የጤና ትምህርት የምክር አገልግሎት ይሰጣሉ?

- ሀ. ስለጽንሰ እድገትና በእርግዝና ምክንያት የሚጠጡ ችግሮች
- ለ. የአመገብ ስርዓት
- ሐ. የግል ንጽህና አጠባበቅ
- መ. የእርግዝና ወቅት የሚታዩ አደገኛ ምልክቶች
- ሠ. የእናት ጠቅ ወተት ጠቃሚነት
- ረ. ስለ ጎጂ ልማቶች /አላአግባብ መድሀኒት መወሰድ፣ ስጋራ ማጨ.../
- ሰ. ስለ ወሊድ እቅድ ቅድመ ክትትል
- ሸ. የሚቀጥለው ቀጠሮ መቼ እንደሆነ ማስወቅ
- ቀ. የኤች አይቪ እና የአባላዘር በሽታ ጎጂነት
- በ. የኤች አይቪ ምርመራ ስለማድረግ

መ. በቅድመ ወሊድ ክትትል ክፍል ወስጥ ሲሰሩ የሚጋጥሟት ችግር በተመለከተ

16. በስራ ላይ ያጋጠሟቸውን ችግር ቢገልፁልን?

- ሀ. የህክምና ሙሉ ማሪያዎች
- ለ. የትራንስፖርት ችግር
- ሐ. የሰልክ አገልግሎት አለመኖር
- መ. የባለሙያ እጥረት
- ሠ. የመድሀኒት አቅርቦት ችግር
- ረ. የህብረተሰብ በጤና ባለሙያዎች ላይ ያለው አመለካከት ችግር

17. የነፍሰጤ ክትትል ክፍል የስራ ሰዓት ቢገልጹልኝ?

18. በዚህ ጤና ጣቢያ የነፍሰጤ እናቶችን ክትትል በተመለከተ ያልዎት አስተያየት?

አመሰግናለሁ፡፡

Annex VI: Questionnaire II: Observation Check list

Important components of focused antenatal care (FANC) service

FANC services Parameter	Visit 1	Visit 2	Visit 3	Visit 4	Standard based on 4 visits	Remark Yes=when procedure done No= when procedure is not done
Comprehensive history taking						
Personal history					Ask once	
Past medical/surgical history					Ask once	
Past obstetric history					Ask once	
History of current pregnancy					Ask once	
History of complaints in current pregnancy					Ask every visit	
Information provision						
Danger signs in pregnancy					Inform every visit	
Immunization information					Inform (at least) once	
Nutrition information					Inform every visit	
PMTCT information					Inform (at least) once	
About Family planning					Inform every visit	
Birth preparedness (place of delivery, financial arrangement...)					Inform every visit	
Complication readiness(plan for addressing nay complication)					Inform every visit	
Infant/Breast feeding					Inform every visit	
Smoking and Alcohol					Inform every visit	
Importance of postpartum visit						
Sign of Labour						
Schedule of return visit					At 4 th visit if not delivered at 41 wks	

Drugs distribution and immunization						
Iron/Folate					Administer every visit	
Mebendazol					Administer two times	
Tetanus toxoid						
ARV prophylaxis					For HIV +ve	
Anti D						
Clinical examination						
Weight					Check every visit	
Blood pressure					Check every visit	
Pulse rate						
Temperature						
Respiratory rate						
Head to toe examination					Check every visit	
Vaginal examination					Check once at visit 1 or 2	
Breast examination						
Anaemia/pallor					Check every visit	
Generalized Oedema					Check every visit	
Uterine (Fundal) height					Check every visit	
Foetal heart sound						
Foetal lie & Presentation						
Laboratory services						
Haemoglobin					Check visit 2 for <7gm/dl	
Urine for albumin					Check every visit for Nullpara or Hx of preeclampsia	
Urine for infection					Check every visit	
Syphilis					Check once	
HIV					Check once	
Blood group and RH					Check once	
Stool exam					When free/ Mebendazol is not recommended	

Source: Federal Ministry of Health, management protocol on selected obstetric topics, May 2010.p8-35

Annex VII: Questionnaire III; Check list for inventory of Facility, Equipment and supplies for FANC

Code of the health institution _____

1- Who is interviewed?

1- Head of the institution

2- Head of the unit

3- Institution administrator

4- Member of the health institution (specify) _____

5- Other (specify) _____

3 – Does the institution have generator in case of light problem?

1- Yes 2 – No

4 Does the ANC room have examination couch? 1- Yes 2- No

5- Does the ANC room have sufficient light source? 1- Yes 2- No

6- Which of the following items are available and in satisfactory condition? (Be sure to look at each item

	Available and satisfactory...1	Available but not satisfactory...2	Not Available...3
Facility			
Space available in the waiting area			
Examination area			
Toilet			
Privacy			
Infection prevention			
Equipment			
Screen			
Weighing scale (adult)			
Sphygmomanometer			
Stethoscope			
Foetal scope			
Thermometer			
Laboratory facility			
Laboratory reagents			
Haemoglobin			
Urine dip test for glucose			
Urine dip test for albumin			
HIV testing			
Blood group			
Syphilis			
Pregnancy test			
Microscopic urine test			
Drugs			
Fe-sulphate			
Folic acid tablet			

Antimalarial tablet			
Anti helminthics			
TT vaccine			
Magnesium Sulfate			
FANC guidelines/reference materials			
Revised ANC cards			
ANC register			
Standard for focused ANC			
Management protocol on selected obstetric topics			
Staff			
Number of staff(Midwife, Nurse, health officers and laboratory technician)			

Declaration

This thesis is my original work and has not been presented for a degree in any other university, and that all sources of materials used for the thesis have been acknowledged

Full Name of the Candidate: Aster Berhe Aregawi

Signature_____

Date: June 2014

Confirmed by:

Name of the Thesis Advisor: Professor Mesganaw Fantahun (MD, MPH, PHD)

Signature_____

Date: June 2014