

**ADDRESSING THE HIGH ADVERSE PREGNANCY OUTCOMES THROUGH THE  
INCORPORATION OF PRECONCEPTION CARE (PCC) IN  
THE HEALTH SYSTEM OF ETHIOPIA**

By

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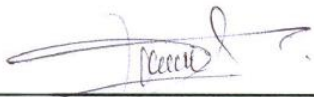
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NOVEMBER 2017

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### DECLARATION

I declare that **ADDRESSING THE HIGH ADVERSE PREGNANCY OUTCOMES THROUGH THE INCORPORATION OF PRECONCEPTION CARE (PCC) IN THE HEALTH SYSTEM OF ETHIOPIA** is my own work and that all sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work is not being submitted before for any other degree at any institution.



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(Full Names)

15 / Nov / 2017  
Date

# ADDRESSING HIGH MATERNAL AND INFANT MORTALITY THROUGH THE INCORPORATION OF PRECONCEPTION CARE (PCC) IN THE HEALTH CARE SYSTEM OF ETHIOPIA

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## ABSTRACT

**Background:** Preconception care (PCC) is highly recommended evidence-based intervention to optimize women's health in particular and in so doing reduce the incidences of adverse pregnancy outcomes (APO). PCC targets modification of risk factors to APO occurring before and just at early weeks of conception. Nevertheless, in Ethiopia, the need to implement PCC as part of the continuums of the comprehensive Maternal, Neonatal and Child Health Care services is not yet studied.

**Purpose/Aim of the study:** This study aimed to develop a guideline to assist the incorporation of PCC in Ethiopian health system thereby reduce the highly incident APOs in the country, which is the purpose of the study.

**Methodology:** This study applied the explanatory sequential mixed method to determine the determinants to the non-implementation PCC in Ethiopia. In addition, a policy document analysis was conducted to identify the existence of policy guiding the implementation of PCC in Ethiopia. Finally, the study applied a Delphi technique to increase the utility and acceptance of the guideline developed. The study was guided by a theory based framework called a Framework for Determinants of Innovation Processes (FDOIP).

**RESULT:** Nearly all (84.7%) of the healthcare providers (HCPs) never ever practiced PCC. Even among those who ever practiced, the majority (74%), practiced it poorly. More than two third (68.6%) had poor PCC knowledge. HCP's with good PCC knowledge had likely hood of practicing PCC by four times greater than those with poor PCC knowledge (AOR=4.4, 95% CI: 2.5-7.6). The policy document analysis identified the absence of policy guiding the practice of PCC in Ethiopia. The HCP's curriculums also didn't include PCC. The determinants to non-implementation of PCC, as perceived by the qualitative study participants include absence of national PCC policy , absence of PCC guideline, lack of institutional PCC plan, presence of other competing demand, lack of laboratory facilities and setup, lack of accountable body, absence of Individual or organization introduced PCC to the country, absence of trained manpower on PCC, absence of known expert in PCC, Poor public awareness about preconception health and PCC, Unplanned Pregnancy and poor health seeking behaviour.

## **CONCLUSION**

The study revealed the absence of a standard and complete PCC practices by the HCPs. Nearly all HCPs never ever implement PCC. Even those very few practitioners were found practicing PCC poorly that is in a substandard, incidental, and in an inconsistent way. There is no formal policy document guiding the implementation of in Ethiopia. The HCPs training curriculum didn't include PCC. The guideline developed base on the study findings of the study recommended to incorporating PCC in Ethiopia health system.

## **Keywords**

Preconception care, pre-pregnancy care, Interconception care, PCC determinants, barriers to PCC, facilitators to PCC, PCC knowledge

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This paper is dedicated to

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**I am thank full to the Lord God for keeping her soul with Him**

“..Jesus said unto her, I am the resurrection, and the life:  
he that believeth in me, though he were dead, yet shall he live:...”

John 11:25

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## List of Abbreviations

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ACE	Angiotensin-converting enzyme
ANC	Antenatal care
APH	Antepartum Haemorrhage
APO	Adverse Pregnancy outcome
ARB	Angiotensin Receptor Blocker
BCC	The Behavioural Change Communication
BCW	Behavioral Change Wheel
BEOC	Basic Essential Obstetric Care
BG	Blood Glucose
BGL	Blood Glucose Level
BMI	Body Mass Index
BSFH	Bachelors of Science in Family Health
C/S	Caesarean Section
CAC	Comprehensive Abortion Care
CDC	Centres for Disease Control
CEOC	Comprehensive Essential Obstetric Care
CI	Confidence Interval
COR	Cruds Odds Ratio
CSA	Centre for Statistical Agency
CVD	Cardio Vascular Disease
CVI	Content Validity Index
DEEF	Design Effect
DM	Diabetes Mellitus
DOI	Diffusion of Innovation theory
DVT	Deep Venous Thrombosis
EDHS	Ethiopian Demographic Health Survey
EFDRE	The Federal Democratic Republic of Ethiopia
EPI	Expanded Program in Immunization
EVP	Evidence-based Practice

## List of Abbreviations...Continued...

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FANC	Focused Antenatal Care
FASD	Fetal Spectrum Alcohol Disorder
FDOIP	Framework for Determinants of Innovation Processes
FGD	Focused Group Discussion
FGM	Female Genital Mutilation
FMHACA	Ethiopian Food and Drug Administration and Control Authority
FMOE	Ethiopian Federal Ministry of Education
FMOH	Ethiopian Federal Ministry of Health
GDM	Gestational Diabetes Mellitus
GO	Governmental Organizations
GP	General Practitioners
HbA1c	Haemoglobin A1c
HCP	Health Care Providers
HCT	HIV Counselling and Testing
HEW	Health Extension Workers
HIV	Human Immunodeficiency Virus
HP	Health Posts
HPN	Hypertension
HSDP	National Health Sector Development Programme
HSF-MNCH	A Health Systems Framework for Maternal, Neonatal and Child Health
HST	General System Theory
HSTP	Health Sector Transformation Plan (HSTP 2015-2020)
HU-CSH	Hawassa University Comprehensive Specialized Hospital
ICC	Interconception care
IDI	Individual Interview
IEC	Information Education and Communication
INC	Intranatal Care

## List of Abbreviations...Continued...

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ITN	Insecticide Treated Nets
IUFD	Intrauterine Fetal Death
IUGR	Intrauterine Growth Retardation /Restriction
KAP	Knowledge Attitude and Practice
KII	Key Informant Interview
LBW	Low Birth Weight
M&E	Monitoring and Evaluation
MMR	Maternal Mortality Ratio
MOA	Ministry of Agriculture
MOC	Ministry of Communication
MOE	Ministry of Education
MOFED	Minister of Finance and development
MOWAD	Ministry of Works and Urban Development
MOWYC	Ministry of Women Youth and Children
NASP	National Strategic Action plan
NCD	Noncommunicable Disease
NGO	Non Governmental Organizations
NTD	Neural Tube Defect
PAC	Postabortal Care
PB	Preterm Baby( Birth)
PCC	Preconception Care
PHC	Public Health Centre
PHCU	Primary Health Care Units
PHI	Public Health Institutions
PHO	Public Hospitals
PIH	Pregnancy Induced Hypertension
PIHCT	Provider Initiated HIV Counselling and Testing

**List of Abbreviations...Continued...**

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PLHA	People living HIV/AIDS
PMTCT	Prevention of Mother to Child Transmission of HIV Infection
PNC	Postnatal Care
PPH	Postpartum Haemorrhage
PRAMS	Pregnancy Risk Assessment Monitoring System
RH	Reproductive Health
RHB	Regional Health Bureaus
RLP	Reproductive Life Plan
SGA	Small for Gestational Age
SGD	Sustainable Development Goals
SRH	Sexual and Reproductive Health
STI	Sexually Transmitted Infections
TB	Tuberculosis
TOC	Theory of Change Models
TT	Tetatanous Toxoid
VCT	Voluntary HIV Counselling and Testing
WHO	World Health Organization



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# CHAPTER 1

## ORIENTATION TO THE STUDY

### 1. INTRODUCTION

Globally, the magnitudes of infant death, perinatal death, stillbirth, miscarriage, birth defects, and maternal deaths remained unacceptably high (WHO 2012, Rubens CE, Gravett MG, Victora CG, Nunes TM; GAPPS Review Group. 2013, CDC 2006). The prevalence and incidence of infant survival indicators such as low birth weight (LBW) and preterm baby (PB) are among regularly reported key outcome indicators (Blencowe H, Cousens S, Oestergaard M, Chou D, Moller AB, Narwal R, Adler A, Garcia CV, Rohde S, Say L, Lawn JE. 2012, Beck S, Wojdyla D, Say L, Betran AP, Merialdi M, Requejo JH, et al. 2010, World health Organization 2006). Both indicators, the LBW and PB, are still reported at a higher level. The efforts targeting reduction of these adverse pregnancy outcomes (APO) are not yet moving well. The international consorted effort which operates for the past three to four decades has shown a promising result. Nevertheless, the higher magnitudes of these APOs are still among the leading and unsettled international health issues threatening all humankind (WHO 2015, UNICEF 2015).

The health status of the couples, particularly of the woman, prior to pregnancy or conception and during the pregnancy period can adversely affect the outcome of the pregnancy (Lassi ZS, Majeed A, Rashid S, Yakoob MY, Bhutta ZA. 2013, WHO 2012). Nonetheless, the effects of the preconception health status of women to the fetus are not yet well recognized by the public (WHO 2012). Astonishingly, the lack of awareness is not only among the community but of the health care providers (Mosalem FA, 2012, Best Start Resource Centre, 2009). As a result of the interventions to prevent APO, especially antenatal care (ANC), are started months after the pregnancy confirmed. This time is too late to act upon those modifiable preconception risk factors seriously and irreversibly affecting the pregnancy outcome (Dean et al., 2014, Kerber, K.J., de Graft-Johnson, J.E., Bhutta, Z.A., Okong, P., Starrs, A., et al. 2007 ).

There are existing recommendations that target optimization of women or couples health before conception. The CDC in 2006 and the WHO in 2012 had recommended the need to implementing PCC before and in between pregnancy. This is an evidence-based intervention called preconception care (PCC)(CDC 2006, WHO 2013a). PCC as defined by the WHO is “...is the provision of biomedical, behavioural and social health interventions to women and couples before conception occurs. It aims at improving their health status and reducing behaviours and individual and environmental factors that contribute to poor maternal and child health outcomes. Its ultimate aim is to improve maternal and child health, in both the short and long term” (WHO 2013a).

As reported by the WHO in 2013, there were only a few countries that started implementing PCC. Most developed countries and some middle-income countries already integrated PCC in their countries health system. The WHO's recommendation is not limited to the developed countries but to all developing countries (WHO 2013a). Nevertheless, there is lack of information regarding the implementation status of PCC in the developing world including Ethiopia.

This chapter is, therefore, a part of the theses that shows, the backgrounds of the research problem, statement of the problem, aim and purpose of the study, objectives of the study, significance of the study, and the methodological and theoretical underpinnings guiding these research project.

## **1.1. BACKGROUND INFORMATION ABOUT THE RESEARCH PROBLEM**

### **1.1.1. The burden of adverse pregnancy outcome (APO)**

Adverse pregnancy outcomes (APO) related to the women, foetus, and the child are among the top on the lists of ever existing but yet unsolved global reproductive health problems (United Nations 2015). Every year, in the past 25 years, about half a million women die due to maternal causes. The sum of the consecutive maternal death reported from the year 1990-2015 results in 10.9 million estimated maternal deaths (Alkema L, Chou D, Hogan D, Zhang S, Moller AB, Gemmill A, et al. 2016). This report, unfortunately, doesn't tell us deaths of women happening due to maternal causes beyond 42 days of

labour. This is because the WHO report only gives a picture of the death of a woman while pregnant or within 42 days of termination of pregnancy (WHO, 2014).

Even much more grievous than the maternal mortality reports are maternal morbidity reports (Firoz et al., 2013). For instance, in the developing regions, there are over 300,000,000.00 women suffering from short and long-term illnesses related to pregnancy and childbirth. Out of this 8 million are suffering from conditions usually leading to a serious form of disability (Hogberg, 2005, WHO, 2005). These problems, the maternal mortality and morbidity, are most significant portions of the overall adverse pregnancy outcomes (APOs) happening around the Globe (WHO, 2017a, Johnson et al., 2006, Kramer, 2003).

Most of the other APOs linked to the foetus, the newborn, and the child include: pregnancy loss or miscarriage, stillbirth, congenital anomaly or birth defect, preterm baby (PB), low birth weight (LBW), perinatal mortality, neonatal and Infant deaths (Johnson et al., 2006, Kramer, 2003). Pregnancy and childbirth are dominantly wanted, socially valued, naturally pleasurable and joyful experience to all humans. However, these don't happen without the range of pregnancy-related illness, labour pain, and psychological responses (Robinson GE 2014, Nakamura 2010, White 2017, Sawyer et al, 2011). The occurrences of these feto-maternal APOs further fuel the suffering of the mother and also disrupt the family condition leading to high individual and social costs (Kramer, 2003, Johnson et al 2006).

The magnitudes of the globally reported APOs related to the foetus and the child are still high. For instance, every year 4 million neonatal deaths and 2.7 million stillbirths are reported. Of the 4 million annually reported neonatal death, three-fourths (75%), is happening during the first weeks of the newborns' life (Blencowe H, etal 2012, World Health Organization 2016,). Most important predictors of the survival of the foetus and or the infant are Low birth weight (LBW) and preterm labour/birth (PB)(WHO, 2017b). Annually, 15 million PBs join this world. Sadly, about 7% (1 million) of these died shortly after birth but PB remains as one of the leading and direct cause of the 27% of overall neonatal Mortalities. Almost all of preterm babies (PBs) are with LBW. However, LBW babies can also be term babies. Like to that of PB, LBW is the most important outcome indicator of infant survival. Fifteen percent of all pregnancies around the world end up with

LBW. Most LBW and PB survivors usually suffer from lifelong physical disabilities, developmental delay, neurologic deficits, and learning difficulties (Blencowe H, et.al 2012, WHO 2016).

The other serious existing global health problems linked to APO are spontaneous abortion (miscarriage/pregnancy loss) and congenital anomalies (WHO 2013a, CDC 2006). Nearly one-fifth (20%) of clinically confirmed and a quarter of (26%) unrecognized pregnancies ended up with spontaneous abortion (Tulandi et al., 2013). This spontaneous termination of pregnancies may not only trigger psychological grievance to partners who want the continuation of the pregnancy but can develop serious and fatal conditions like bleeding and disseminated intravascular coagulation (DIC) (Tomson, T., Battino, D., Bonizzoni, E., Craig, J. J., Lindhout, D., Perucca, E., Sabers, A., Thomas, S. V., Vajda, F. & Group, E. S. 2015.).

The most psychologically torturing APO happening around the world is the occurrence of congenital anomalies. Three to four percent (3%-4%) of live births in the world ended up with major congenital anomalies. Congenital anomaly is one of the most common causes of miscarriage, stillbirth and neonatal mortality and morbidity (WHO 2016). Sexually transmitted infections (STIs), including HIV, are other infectious diseases operating in the same fashion like to that of congenital anomalies but claiming the lives of many more millions worldwide (Moodley P & Sturm AW, 2000).

Nearly all of APOs are reported from Low-income countries. For instance, the vast majority (99%) of all the maternal death, more than 60% of preterm birth, 96.5% of LBW (Blencowe et al., 2012, WHO, 2017b) , 98 % of stillbirth(Stanton C, Lawn JE, Rahman HZ, Wilczynska-Ketende K, Hill K. 2006) and 99% of Neonatal death (World Health Report, 2005 ) are happening in developing countries especially in the Sub-Saharan Africa, where Ethiopia is located .

### **Existing strategies to reduce APO**

Most of the factors contributing to APO among the mother and the child are avoidable (WHO 2013a). The most globally known and commonly applied preventive strategies

include Antenatal care, Institutional delivery, and Postnatal care (Lawn JE, Kerber K. 2006). These set of maternal health care services in the past three to four decades were proven effective but could not solve all APOs. With these interventions, the health care providers are acting too late after the conception happened and after the women aware that she is pregnant (CDC 2006, Dean et al., 2014). The first ANC visit, unfortunately, happens after the 12 weeks of gestation. The early gestational weeks are the missed periods which are critical to the development of the fetal organs. The irreversible and major damages happening to the foetus are happening during this critical period. That's why the existing interventions are too late to solve APOs happening during the critical periods. In addition, these interventions are not totally designed to target on preconception risk factors leading to the development of APOs happening within the critical period mentioned( WHO 2013a, CDC 2006).

Most of the women and their couple entering in a pregnancy are laden with various preconception risk factors to APO. These preconception risk factors include existing maternal and paternal disease conditions ( e.g. diabetes mellitus (DM), hypertension (HPN), asthma, cardiovascular diseases (CVD), depression, schizophrenia etc.), women's Body Mass Index (BMI) < 18.5 and > 25, poor daily fruit and vegetable intake, poor physical exercise, presence of preconception stressors, infectious diseases like HIV/STIs hepatitis B and C virus infections, taking prescribed or over-the-counter drugs and teratogenic medications, illicit drug use, alcohol use, substance use, tobacco smoking, environmental exposure to radiation and toxic substances, contact with pets, non-updated vaccination status, racial and genetic conditions, physical violence and others are included (Mastroiacovo, P., nilsen, R. M., Leoncini, E., Gastaldi, P., Allegri, V., Boiani, A., Faravelli, F., Ferrazzoli, F., Guala, A., Madrigali, V. & Scarano, G. 2014., WHO 2014). These risk factors, amusingly, are not well known by the majority of women and their couples. On the top of this, most of the pregnancies are unplanned. As a result, they failed to seek counselling and medical care before the pregnancy happened(Pandolfi E, Agricola E, Gonfiantini MV, Gesualdo F, Romano M, Carloni E, Mastroiacovo P, Tozzi AE.. 2014, Poels M, Koster MP, Boeije HR, Franx A, van Stel HF. 2016)

The lately identified but effective evidence-based intervention among the continuum of the spectrum of the maternal and child health services is preconception care (PCC)(Dean et

al., 2014, Kerber, K.J., de Graft-Johnson, J.E., Bhutta, Z.A., Okong, P., Starrs, A., et al. 2007). Preconception care is a unique and innovative approach which identifies couples contemplating pregnancy before conception to modify biomedical, behavioural, social, and environmental risk factors leading to APO. It is the only recommended evidence-based practice (EVP) targeting the critical periods of the infant's organ formation. PCC is, therefore, the primary indispensable element among the components within the spectrum of the continuum of the reproductive health (RH) services package to prevent APO (WHO 2013a, CDC 2012).

Except for its proven benefits, so far, there is no existing evidence depicting the disadvantage of PCC (Braspenningx S, Haagdoorens M, Blaumeiser B, Jacquemyn Y, & Mortier G 2013 ). Cognizant of this fact the CDC in 2006 and the WHO in November 2012 give a recommendation for the implementation of preconception and interconception care interventions as part of the overall national and international health system ( WHO 2013a). Preconception care as defined by the CDC is nearly similar to the definition given by the WHO. The CDC defined PCC as “...*a set of interventions that aim to identify and modify biomedical behavioural and social risks to the women's health or pregnancy outcome through prevention and management.*” (CDC 2006).

The CDC by the year 2006 gave 10 recommendations to improve the preconception health and health care in the United States. These recommendations emphasize the need for assisting couples to have reproductive life plan (RLP), increasing consumer's awareness towards PCH and PCC, the need for conducting preventive visit or conduct risk screening and counselling, managing identified risk conditions and managing existing chronic diseases, Providing inter pregnancy or interconception care (ICC), the need for conducting ongoing researches in the area, and others are included (CDC 2006).

After six years of the release of CDC's recommendation, the WHO also released its PCC recommendation to the whole world. The 2012 WHO's PCC recommendation is consistent with the CDCs' except that it added some minor modifications. Cognizant of the existing gap in the continuum of the RH services, the WHO passed its recommendations so that PCC can be implemented in all countries of the world including the middle and low-income

countries (WHO 2013a). The WHO asserted the fact that along with the other health service packages PCC can reduce death among mothers and children, prevent unplanned and unwanted pregnancies, prevent delivery complications, prevent stillbirth, prevent Low birth weight and preterm labor, prevent congenital anomalies and neonatal infections, prevent stunting, and prevent mother to child transmission of HIV/STIs (WHO 2013b).

Now there is already a global consensus to incorporate PCC as one of the continuum of RH services with the intent of averting mortalities and morbidities related to mother and child (Braspenningx S 2013). The WHO, during this assembly, pledges to help the implementation of PCC at National level by playing its health system strengthening roles. The WHO's health systems strengthening role in the Global implementation of PCC are of four types. These are, 'Build regional and national capacity to plan, implement and monitor preconception care programmes and services', 'stimulate and support country action', 'Carry out demonstration projects in selected countries', and 'Document and disseminate good preconception care practices' (WHO 2013b). The WHO in its May 2013 66<sup>th</sup> world health assembly has recognized the PCC as a vital intervention to the prevention and control of noncommunicable disease (NCD) (WHO 2013c).

Many countries are already implementing PCC. For instance, the developed countries the USA (CDC 2006), Canada (Bialystok L, Poole N, Greaves L 2013), Australia (Mazza D, Chapman A. 2010 ), most of the European countries are implementing at varying level (Tydén T. 2016). Some of the countries had a history of implementing PCC for nearly a decade. Some of the developing countries had a history of implementing PCC even before the 2012 WHO's assembly on PCC (WHO 2013a). Nevertheless, the need to implementing PCC in Ethiopia is not yet studied.

## **1.2. THE PCC STATUS IN THE SUB-SAHARAN AFRICA**

The WHO acknowledges the existence of PCC in some middle and lower income countries like Bangladesh, Philippines and Sri Lanka. Some African countries have already started implementation PCC (WHO 2013b). The integration and implementation of PCC in some of these African countries are at a various level. However, there is some evidence about the introduction or implementation of PCC in Egypt (Al-darzi W, Al-mudares F, Farah A, Ali A &



Marzouk D. 2014.), Kenya (Ministry of Health; National AIDS and STI Control Program , 2014), Nigeria (Ajayi ET AL., 2013), and South Africa (Department of Health Republic of South Africa, 2015). This might happened as a result of the recommendation given by WHO happened just five years ago. The adoption or implementation of newer evidence-based practices or innovations for change, like PCC, is still the challenge of the continent ( Yuan CT, Nembhard IM, Stern AF, Brush JE, Krumholz HM, & Bradley EH, 2010, Bradley EH, Curry LA, Taylor LA, Pallas SW, Talbert-Slagle K, Yuan C, Fox A, Minhas D, Ciccone DK, Berg D, & Perez-escamilla R, 2012 ).

### **1.3. THE PCC IMPLIMENTATION STATUS IN ETHIOPIA**

#### **1.3.1. The Country Profile**

Ethiopia is one of the ancient and historical countries of the world located in the North Eastern part of the region called the Horn of Africa. The country is surrounded by six East African countries such as Djibouti, Kenya, Sudan, Southern Sudan, Somalia, and Eritrea. The total countries' area is covering 1.1 million Km<sup>2</sup>. Altitude of the country range from 4,620m to an area of greater Danakil depression called Dallol which is found 148 m below the sea level. Based on the altitudinal variations the country has three main climatic regions. These climatic zones include, first, a climatic Zone called "Kolla" covering most of the hot lands situated below 1,500 m sea level. The remaining zones "wainadega" and "Dega" are climatic zones found at altitudinal range 1,000-2,400m and above 2,400m respectively (FMOH 2015).

According to the Center for Statistical Agency (CSA) report, the Ethiopian population size as of July 1, 2017 was 94,352, 000. This makes the country, next to Nigeria, the second most populous countries of Africa. The population is a mix of various nations, nationalities and peoples spiking more than 80 types of languages (CSA [Ethiopia] 2013:48). The average family size per a household is about 4.7 people. The vast majorities (82.5%) of the population are rural residents (EDHS 2016).The population pyramid of Ethiopia is typical of the developing regions characterized by its pyramidal shape denoting higher fertility rate and principally (44.9%) younger (<15) age. At the apex of the pyramid are only 3% of people aged ≥ 65 years. The male to female ratio is almost proportional. The proportion of

reproductive-aged women (15-50 years) is 23.4% (CSA [Ethiopia] 2013:48). As per the recent EDHS report, the total fertility rate per women is 4.6 births (EDHS 2016).

### **1.3.2. Burden of APO in Ethiopia**

There is a paucity of research evidence reported to show the types and magnitudes of the overall APO in Ethiopia. However, the 2016 Ethiopian Demographic Health Survey (EDHS) is in accord with the evidence ascertaining the burdens of APO in the region and the indicators are still unacceptably high (CSA [Ethiopia], 2016). This nationwide demographic survey reported, MMR of 412 per 100,000 and a lifetime risk of pregnancy-related death (LTR) of 21/1000 women. It also reported child mortality rate of 67 per 1000 live birth, Infant Mortality Rate (IMR) of 48 per 1000 live birth, and Neonatal Mortality Rate (NMR) of 29 per 1000 live birth. More over the survey report showed that 86% of the birth weight of the newborns was not known. However 13% of the newborns were with LBW.

Other study reports about the magnitudes of APOs in Ethiopia showed how perilous the condition is. For instance, the regional estimate for stillbirth in Ethiopia was 26/1000 deliveries. This put Ethiopia with the highest burden of stillbirth compared to other East African countries (Cousens S, Blencowe H, Stanton C 2011). Another stillbirth estimate made based on the 2011 EDHS reported a nearly similar figure as reported by the Lancet that is 22.5 stillbirth/1000 live births (Berhie KA, Gebresilassie HG. 2016).

### **1.3.3. The delivery of PCC service in Ethiopia**

Despite the higher magnitudes of APO in Ethiopia, the existing APO preventive strategies in the country are highly reliant on delivery of ANC, INC, PNC, and Child health services (FMOH 2015). Despite our rigorous literature review and experience, we couldn't find any evidence that tells about the implementation of PCC in Ethiopia. The only published article that assessed women's preconception knowledge in Northern Ethiopia reported poor preconception health knowledge (Ayalew Y, Mulat A, Dile M, Simegn A. 2017). However, we couldn't get evidence of existing PCC practice in Ethiopia.

Health care providers (HCP) are primarily responsible and at the forefront to incorporate up-to-date evidence-based clinical practices like to that of PCC. These HCPs such as doctors, nurses, midwives, pharmacists need to have the knowledge, favourable attitude, and skill to provide PCC (WHO 2013a). Nevertheless, one research conducted in one of the African countries reported there is poor PCC knowledge and practice among the HCPs. This study conducted in Egypt reported only 22 % of the HCPs are with good PCC knowledge whereas only 48.5% have a positive attitude towards implementing PCC (Mosale FA, Refaat TM, Emam EA. 2012). One systematic review conducted in Europe showed that most of the HCPs want to provide PCC, but claimed they didn't have sufficient knowledge to go about it (Braspenningx S, Haagdoorens M, Blaumeiser B, Jacquemyn Y, Mortier G 2013). In Ethiopia, we couldn't find any published research reporting the HCP's PCC related knowledge, attitude and practice.

#### **1.4. OVERARCHING ELEMENTS OF THE RESEARCH**

##### **1.4.1. Statement of the problem**

Despite the availability of a number of evidence-based PCC clinical guidelines and recommendations, many of the low-income countries, including Ethiopia have not yet included PCC effectively in their national comprehensive health care system. Particularly, the need to implement PCC as part of Ethiopian health System is not yet studied.

##### **1.4.2. Aim of the study**

The aim of this study is to develop a guideline document guiding the incorporation of PCC in Ethiopian health system.

##### **1.4.3. Purpose of the study**

The overall purpose of this study is to decrease adverse pregnancy outcomes such as maternal Mortality (MMR) and Morbidities, perinatal mortality (PMR) and Morbidities, Neonatal mortality (NMR) and Morbidities, Infant Mortality (IMR) and Morbidities, Low birth weight (LBW), Preterm birth (PB), birth defect or congenital anomalies, congenital infections, Still birth, and pregnancy loss through the effective implementation or integration of PCC in Ethiopia health system.

#### **1.4.4. Research objectives**

This study was conducted in four main phase. The objectives of the study are, therefore, depicted in this phases

##### **Phase one**

- ✓ To determine the level of PCC practice among HCPs working in the public health institutions (PHI) of Hawassa City Administration
- ✓ To determine key factors affecting the implementation of PCC by the HCPs working in the PHIs of Hawassa City Administration

##### **Phase two**

- ✓ To understand the determinants of the PCC implementation process (“Innovation Process”) of in Ethiopia health system.

##### **Phase three**

- ✓ To identify the existence of any policy document guiding the implementation of PCC in Ethiopia

##### **Phase four**

- ✓ To develop a guideline to assist the incorporation of PCC in the Ethiopia health system.

#### **1.4.5. Research questions**

The main research questions guiding the conduct of this research project are listed as follows

- ✓ What is the status of preconception care service delivery or Implementation?
- ✓ What are the determinants to the implementation processes of PCC in Ethiopia?
- ✓ Is there any documented policy guiding the implementation of PCC in Ethiopia?

## **1.5. SIGNIFICANCE OF THE STUDY**

Preconception care is a new EVP which is not yet well introduced and integrated into the Ethiopian health systems. This study is a study for the first time assessed the capacity and preparedness of the health system to implement PCC. The finding regarding the HCPs and the policy document review clearly showed the determinants to the PCC implementation process. The Delphi-panel reviewed guideline developed based on the findings of the current studies and the reviewed literature shall assist the integration of PCC in the country. The identified policy gaps and recommendations given may serve as an input to the policymakers. The gap identified in the universities HCP training curriculum can also awaken the FMOH and FMOE to take prompt action.

The finding of this research will be used as a baseline finding to support future research work and programs. The validated instrument can be used by other interested researchers who want to conduct similar researches in various places of the world. This can help facilitation of comparison of the result across the world. This finding may also be informative to the WHO.

## **1.6. THEORETICAL FOUNDATIONS FOR THE STUDY**

### **1.6.1. The research paradigm**

Research paradigms refer to one's perspectives or worldview. Paradigms are lenses through which we see or view the world or are a type of window framework through which we look at the complexities of the real world. Paradigms can determine the way we understand and define something (Beck, 2014:6). The two dominant paradigms are a quantitative or positivist paradigm and qualitative or naturalistic paradigm. In comparison, the positivist paradigm assumes that there exists only one ultimate reality, thus, seeks objectivity. In this paradigm the inquirer is expected to be independent of the matter being researched. It also emphasizes generalizing or reaching conclusions based on sample studied. In contrast, the Naturalist paradigm assumes that realities are mentally constructed by individuals. This paradigm recognizes the importance of subjectivity and

researchers value. Through this approach, one can understand the nature or quality of a phenomenon (Polite DF, Beck CT .2004:27)

Both paradigms, of course, have their own strength and weakness. For example, understanding the experience of people is better to be described by the naturalistic paradigm. Generalizing the research finding to the population based on the sample studied is not totally the intent of naturalistic but of the positivist paradigm (Polite DF, Beck CT .2004). In actual sense, multitudes of researchers are conducting their researchers to get the complimentary benefits of the two research paradigm with research design called mixed method research (Wisdom JP, Cavaleri MA, Onwuegbuzie AJ, Green CA 2012). Getting our research findings with a mixed method will help us develop an evidence-based and contextually appropriate guideline to incorporate PCC in Ethiopian health system.

Thus, this research, applied both paradigms. With the positivist paradigm, we conducted the first phase of the study which is determining the levels of HCPs' Preconception care practice and the associated factors. The experience of the HCPs, experts, program managers, and other key informants with regard to the barriers to the implementation of PCC in Ethiopia is captured by the naturalistic approach. From the pragmatism and post-post-positivism perspective, the use of both paradigms through a mixed method research is acceptable (Feilzer 2010:8, Shaw JA, Connelly, DM Zecevic AA 2010).

Pragmatism is a paradigm which focuses on the achievement of desired result rather than the processes to goal attainment. Pragmatists usually evaluate a given philosophical theory or model based on its practical value (Shaw JA, Connelly DM, Zecevic AA 2010, Feilzer 2010:8, Teddlie & Tashakkori 2009:541) . The application of mixed method research is also a method which is recommended by post-positivism. From the epistemology, perspective post-positivism is similar to positivism (Fox NJ. 2008). Both paradigms accept that reality is real and the truth is universal (Shaw JA et al 2010, Fox NJ 2008). Nevertheless, post-positivist recognizes the fact that realities can't always be measured directly through our senses. They elucidate what humans perceive through their senses is only part of the reality. Thus post-positivist took the position of approximating the reality and truth Therefore, the value of qualitative research is high in augmenting and

supplementing the quantitative study findings thereby making our understanding greater (Shannon-Baker P, 2016, Fox NJ. 2008).

### **1.6.2. Theoretical Framework**

The description, explanation, prediction, and control of a given phenomena or reality is made based on a scientific theory. Theory helps to organize and summarize concepts or constructs and explain the relationship (Chinn and Kramer, 1991:2). Theory can help to harmonize our current understanding about a particular matter in a uniform way. It, therefore, creates a common language between the producers and consumers of the research output. Theories can be tested and serve as a research and program implementation tool. Using appropriate theoretical framework or model not only add strength to the research but also help to repeat the same research in different corners of the world and foster comparison of the findings in a more meaningful way(University of Southern California, 2017).

The application of a theory may not be attained without clear theoretical framework or model. Theoretical framework as its name indicates is a framework or a structure designed in a way that is logical to explain a given phenomenon or reality. It is made up of logically connected constructs in order to guide a research study and or facilitate implementation of a program (Polite DF, Beck CT .2004:118). Therefore, a number of theoretical models were assessed to guide this study. The models reviewed were models related to systems theories, behavioural theories, social theories, and theories of community health.

The theoretical model or framework selection of the study was made based on the objectives of the study. The development of guidelines to integrate PCC in Ethiopian health care system is a task requiring rigorous and meticulous scientific approach (WHO 2012, Dickoff J, James P, Wiedenbach E 1968). In order to reach all eligible clients with PCC, the provider should provide PCC service. The term provider is a term which stands for both the healthcare organization employed HCPs and the employee HCPs. HCPs are the ultimate implementer or providers of PCC. Understanding the list of factors determining the implementation of PCC in Ethiopia is vital to design a program to change the current condition The theoretical framework to be selected should also be inclusive of all determinants or the in barriers and facilitators of PCC implementation process (Fleuren M,

Wiefferink K, Paulussen T, 2004). Knowing this would also help us to answer the other question how we could integrate the PCC in Ethiopian health system.

#### **1.6.2.1. *The General System Theory (GST)***

The systems' thinking is a widely accepted and a classical theoretical model based thinking which base its root on the GST but continued tuning the practice of various professional fields. The general systems theory was a theory first introduced by a well-known biologist called Ludwig von Bertalanffy in 1936 (von Bertalanffy L 1950). His unique insight and understanding led him to discover a crosscutting theoretical model that helps researchers of various professional disciplines. Congruent with his vision and due to the advancement and customization of the GST to a different professional field by various researchers, the concept "system" is now an integral part of various sectors. For instance, it is now common to see phrases like "information system", "family system", "political system", "health care system" and etc. Though the current project considered a systems thinking approach, the GST was not a model that best feet to the organization and explanation of the variables studied.

#### **1.6.2.2. *The Donobadian Model***

The second model considered in this study was the Donobadian Model. The Donobadian model is a model based on the systems theory (Donabedian A 1997). The model has been used in many health systems kinds of research especially to measure the quality of healthcare services. In this regard, it is the best tool. The application of Donobadian model was tested to assess the quality of PCC in one study (Sardasht FG, Shourab NJ, Jafarnejad F, & Esmaily H, 2015). Since the existence and implementation of PCC in Ethiopia is not yet well studied and also our interest is not measuring the Quality of PCC, we considered another model.

#### **1.6.2.3. *Logic Model and the Theory of Change Models (TOC)***

Most preconception care initiatives in the United States are designed and managed based on concepts of systems thinking using the Logic Model. The use of Logic model in the field of healthcare is very common. It is also very common to see the application of Logic Model



in various national and professional organizations. The model's application is commonly focused on the area of healthcare administration and also health service management. It is also common to see its use on small to large scale project management. The Logic model is a helpful model to program planners or managers. It can shape their thinking about what resource and management will be applied to reach the desired program goal (Innovation Network, Inc 2016, McEwan K , BigelowA 1997).

The Theory of Change (TOC) is another similar model of program management. However, it is difference from the Logic model is more of procedural production of the program. The Logic model starts with allocation of the resources or "inputs" to finally reach to the desired "outputs". Nevertheless, the TOC is designed backwards i.e. starting from the outputs to the inputs (Foundation WKK 2004). The use of these models, therefore, is not primarily for research purposes

#### **1.6.2.4. Other health system models**

The other three models considered in our study were the result-based logic model, the 'control knobs' framework (Hsiao W 2003, Roberts et al 2004) and a health systems framework for maternal, neonatal and child health (HSF-MNCH) (Ergo A, Eichler R, Koblinsky M, Shah N 2011). The first model, result based logic model, is a conceptual framework that is adapted from the basic systems model and health care system model. This model is a model primarily devised to explain health-related issues in primary health care set up (Hsiao 2003, Roberts et al 2004). The control knob model is unidirectional and also not made to explain the health system itself. It is unidirectional because it is a primarily designed for analyzing the effect of the policies of the government with the specific outcomes related to the health sector (Roberts M, Hsiao W, Berman P and Reich M 2004). The last, HSF-MNCH is a model which considered in our study (Ergo et al 2011). This is specific to maternal and child health care services and made based on the WHO's Six building block Model (WHO 2007) and "Control Knobs" Framework (Roberts et al 2004). This framework is recent model which is made to facilitate the national and international health system strengthening work based on a common understanding about health system. Nevertheless, this model was neither used to explain implementation status of PCC nor

recommended by implementation researchers (Fleuren M, Wiefferink K, Paulussen T, 2004, Sijpkens MK 2016).

#### **1.6.2.5. *The WHO System building Framework***

The other framework that addressed the deficiencies of the previous health systems related models was the WHO Systems building Framework (WHO 2007). This framework contained six system building blocks. The primary objective of the WHO while devising this model was to promote common understanding about 'what a health system is' and also 'what activities are included in health systems strengthening'. The model, since its official release in 2007, is continued to be extensively used by various researchers (Mutale W, Bond V, Mwanamwenge MT, Mlewa S, Balabanova D, Spicer N, Ayles H 2013). The WHO has neither changed its use with other model nor modified it (WHO 2007). This model is a tool serving the WHO's desire to promote systems thinking in the healthcare field. The six building blocks identified in this framework are all factors we considered in the current research. The current research is a research conducted with the systems thinking principle (Adam T, Savigny DD 2012). Nevertheless, there were factors that could not be explicitly indicated by this framework (Ergo et al 201). Above all, this framework doesn't seem to have a clear theoretical base. For this reason, we considered another theoretical framework.

#### **1.6.2.6. *Theory of Life course***

The other model we considered in this study is Life course theory (Glen E.;Johnson MK and Crosnoe R: 2003.). The Life course theory considers the fact that APO's are happening due to different factors affecting the human health from conception to death. Those factors leading to the development of APO in the individual's own offspring are the result of the cumulative effects of the genetic, environmental, nutritional, behavioural, and other determinants of health affecting the individual from his/her conception to death (Bates RA, Blair LM, Schlegel EC, MCGovern CM, NIST MD, Sealschott S, Arcoleo K 2017). This is a well taken fact and some professional organizations do also recommend considering the Life course action in regard to planning and implementation of preconception health and

care (Glen E, Johnson MK and Crosnoe R 2003.). However, its vastness for a conduct of specific and very narrow scoped research, like to our research project makes it an ideal model. The reported limitation of this Model is its complexity and impracticability. Since the focus of our research is mainly in the provision of the PCC, we didn't directly use this theory. However, we tried to address to assess whether the existing health and health care policy documents related to PCC incorporated the life course considerations of citizens preconception health.

#### **1.6.2.7. *Public Health Ecological Model***

The public health ecological model is recommended preconception health promotion model by the CDC (CDC, 2006). The ultimate aim of this model is optimization of individual's health by applying a targeted intervention on various health determinants. These are factors related to the individual, interpersonal, institutional, community and social or policy-related factors (Glanz & Bishop 2010:403). This model is the application of social determinants of health in public health field. The application of this theory is suitable to guide public health intervention. In addition, it is suitable to assess factors affecting determining the prevalence or incidence of a given disease in a given community (Institute of Medicine. 2003). But we found it not fitting to the current study. This is because of the reason that it not adequate to accommodate all factors that affect implementation of PCC.

#### **1.6.2.8. *Social and Behavioral Models***

Some of the models considered were behavioural theories, such as the health belief model (Gorin SS 2006:56), theory of reasoned action and theory of planned behaviour (Rossi AN, Armstrong JB 2008, Godin G, Kok G 1996). These theories were all primarily designed to assess the reasons for why humans behave the way they behave. They were not primarily designed to assess factors related to health professionals practice. A number of researchers conducted studies based on these theoretical models to assess factors affecting the implementation of EVP by health care providers couldn't cover all factors. These models are rather good to predictors of behaviours related to patient's clinical service uptake or adoption of healthy behaviours. In response to filling this gap, another

framework that considered various behavioural models and health system related factors were developed. This is called a Behavioral Change Wheel (BCW) (Michie S, van Stralen MM, West R 2016).

#### **1.6.2.9. Behavioral Change Wheel**

In the development of BCW, there were group of experts such as health system researchers, implementation researchers and behavioural theorists. The consensus reached by these groups of experts makes the model preferable in the area of EBP implementation research (Michie S, van Stralen MM, West R. 2016.). Nevertheless, this framework doesn't clearly describe the process of PCC implementation as the diffusion of innovation theory (DOI) does. The DOI is a theory that clearly explains how an innovation (new EVP) is diffused from the innovators down to the users (HCPs). Identifying Factors affecting the diffusion process or implementation process of a given Innovation help us to make sure that whether the innovation will continually be used (Rogers EM. 2003). The BCW is a preferable tool to study the implementation of EVB which is well diffused and established. Nonetheless, it is not suitable to study not well-introduced innovation or EVP like the PCC.

#### **1.6.2.10. Framework for Determinants of Innovation Processes (FDOIP)**

The average time taken to the complete implementation of EBP after its appearance on guideline takes about nine years. The possible maximum delay in the implementation process of EVP occurs in LIMICs (Yuan CT, Nembhard IM, Stern AF., Brush, JE, Krumholz HM & Bradley EH, 2010). After about 12 years of the CDC's recommendation the practice of PCC in Ethiopia seems nonexistent (CDC 2006, WHO 2012). Before the fullest implementation of an innovation there should be a planned, targeted and an antecedent effort that makes the adopter knowledgeable and skill full (Fleuren M et al 2004, Rogers EM 1983). Fleuren et al, based on the Roger's DOI theory, The theory planed behaviour, and other several implementation models developed a generic framework called a framework for determinants of innovation processes (FDOIP) (Fleuren, M et al 2004, Fleuren M, Paulussen TG, Van Dommelen P, Van Buuren S 2014). For about the past 20 years the FDOIP has been used as a tool to introducing innovations in health care

systems. It also served as an evaluation framework (Fleuren M 2014, Sijpkens MK, Eric AP, Steegers EA, Rosman AN 2016)

The FDOIP was devised to identify all factors determining innovations in the healthcare field. It was devised in a similar fashion like to that of the BCW (Fleuren, M et al 2004). The adoption or implementation of PCC, the innovation in the current study, by all HCPs is a process. Innovation is defined as an idea, practice or technology/material which is considered new either by the individual or the group (Rogers EM. 2003, Sijpkens MK). Since PCC is newly recommended EBP which is not well introduced and implemented (WHO, 2013a), we found the DOI theory fit for the purpose of this research. The FDOIP, in particular, is one of the best theoretical frameworks suited for a study assessing barriers and facilitators of the EBP innovation process in the healthcare field (Sijpkens MK 2016). For this reason, we selected this framework (Figure-1).

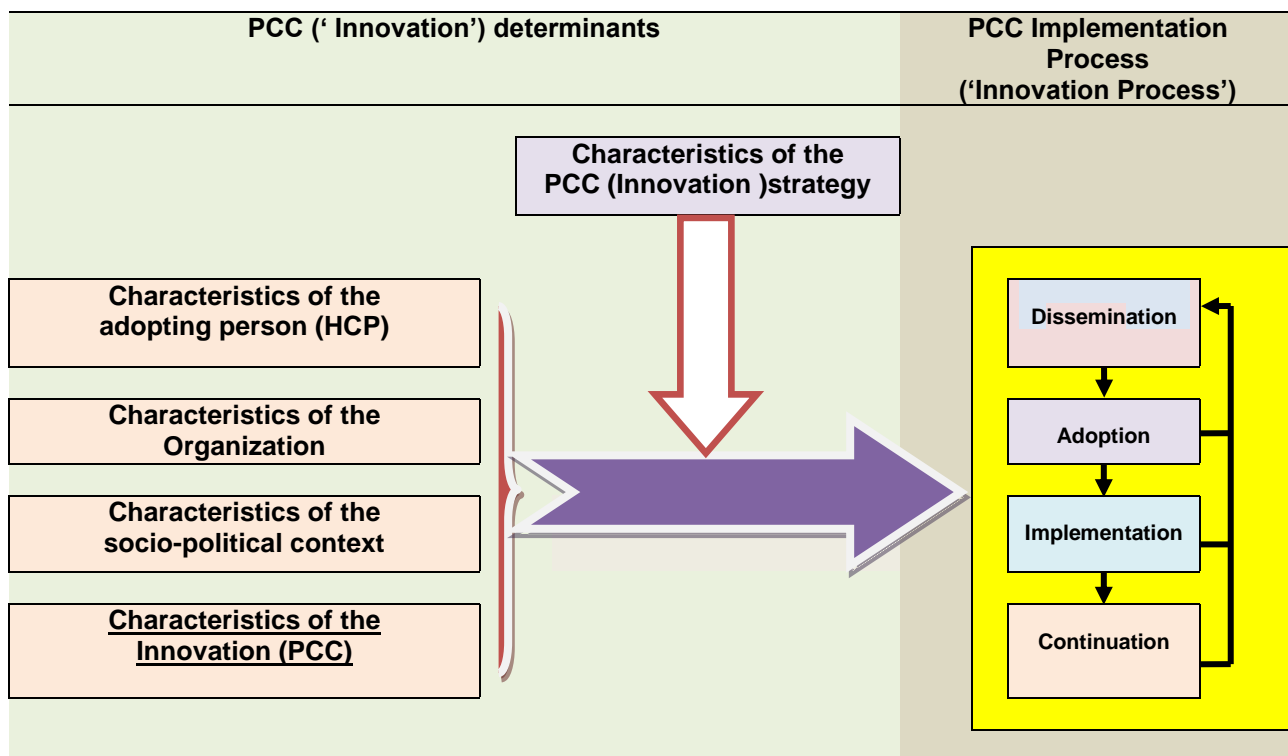


Figure- 1: Framework for Determinants of Innovation Processes (FDOIP), adapted from the Diffusion of Innovations (DOI) theory. (Fleuren M et al 2004)

## 1.7. DEFINITION OF CONCEPTS AND TERMS:

Vital concepts and terms to understand the terms used in the theoretical framework and others used in this document are defined as follows

**Dissemination:** Targeted strategies to make HCP ('potential adopters') aware of the 'innovation' (PCC), make them knowledgeable, and encouraged to 'adopt' it or start practicing PCC

**Adoption:** is a status when a HCP show commitment to commence practicing PCC or 'using the innovation"

**Implementation:** is said to happen when a HCP or the health care organization 'puts an innovation to use' or start providing or practicing the PCC. The term 'Implementation' in this study therefore imply the levels of HCPs' PCC practice.

**Maintenance:** imply the degree to which 'an innovation' or the practice of PCC or implementation of PCC is continued over time, particularly after attempts to diffuse the innovation end (also known as stability).

**Preconception care (PCC) or 'innovation':** is evidence based practice or intervention which is not well introduced in Ethiopia.

- NB: In our study the definition of PCC is taken from the PCC as defined by the WHO and it also inclusive of interconception care. Pleases see the WHO definition of PCC indicated above.

**Innovation decision process:** the process by which an individual HCP or Health care organization progress from 1) initial awareness of an innovation (PCC) to forming attitudes about and deciding to adopt or reject the innovation (PCC) and preliminary use, to consistent and committed use

**HCPs' Knowledge on PCC:** Is measured using 18 questions, each containing only one correct answer. Those who correctly answered 75 %+ of these items would be labelled as HCPs with '*good PCC knowledge*'. Those who scored 50% -74% were HCPs with '*Fair PCC knowledge*'. The remaining, who scored < 50% were titled as HCP's with '*poor PCC knowledge*'.

**HCPs' attitude towards PCC:** This is measured using 10 questions with possible five point Likert scale responses ranging from “*strongly disagree*” to “*strongly agree*”. Based on the overall mean score, those who scored above the mean were considered HCP's with ‘*favourable attitude towards PCC*’ and those scored below “*unfavourable attitude towards PCC*”.

**Level of HCP's PCC practice (Level of HCPs' PCC Implementation):** This was measured with a total of 36 questions measuring the frequency with which they practice each PCC practice components. Their response to these questions were captured with five point likert scale responses such as “Not at all”, “rarely”, “sometimes”, “often times”, and “always”. Those HCPs who scored 50%+ of the composite scores of the total item measuring practice were taken as ‘*HCPs with good PCC practice*’. The remaining, HCPs who scored below 50%, were categorized as ‘*HCPs with poor PCC practice*’.

**PCC implementation Process:** The intentional or planned process of integration of PCC in the health system across the four levels of the implementation process called diffusion, adoption, implementation and maintenance. The ultimate aim of PCC implementation process is making PCC part of the day today or routine practice of HCPs

**PCC innovation determinants:** These are group of factors affecting PCC implementation process. As indicated in the frame work, these includes; characteristics of the ‘innovation’ (PCC), characteristics of the adopting person, characteristics of the organization, characteristics of the Socio-political context, and characteristics of the PCC (‘innovation’) strategy.

**Guideline:** This term, in this study, stands for a guideline prepared to support the integration process or to ease the implementation process of the PCC in Ethiopia health system.

**Health care Provider (HCPs):** the health care providers in this study stand for Medical Doctors, Nurses, Midwives, Public health officers, Health Extension Workers (these are nurses who took special training) Pharmacists, and medical laboratory technicians.

**Policy Documents:** These are the Ethiopian government documents used to guide the health care delivery, particularly potential documents that may guide the PCC implementation. These include constitution, policies, strategies, protocols, guidelines, monitoring and evaluation documents, curriculums, HCPs training materials and other related documents.

**Ethiopian Health System:** the Ethiopian health system 'consists of all organizations, people and actions whose *primary intent* is to promote, restore or maintain health'. With this definition FMOH is not the only component of the system other individuals and organizations working towards attaining the goal set by FMOH are parts of the system. Example: Schools and the media can pass the messages about preconception health.

## **1.8. RESEARCH DESIGN AND METHOD**

This is a cross-sectional descriptive mixed method research (MMR) that employs explanatory sequential design. The initial study was a quantitative study conducted to assess the level of HCP's PCC practice and factors affecting their practice. Subsequently the qualitative study was conducted. The aim of the qualitative study was to explain why the results obtained in the quantitative study happened that much? Specifically, to answer the question why the PCC implementation process in Ethiopia is not yet started? Of course, before coming to the qualitative study, an intensive policy document review was conducted to get an objective answer about the existence of policy guiding the practice of PCC in Ethiopia. Based on the findings of these subsequent studies and the findings of other literatures reviewed, a guideline was developed. This was guideline developed with the aim of assisting the incorporation of PCC in the Ethiopian Health system. The first version guideline drafted by the PI was again submitted to expert Delphi-panels for further enrichment and approval. The review comments of the Delphi-panels are incorporated in the guideline presented at chapter six.

## **1.9. STRUCTURE OF THE THESES**

These theses contained a total of seven chapters. The chronology and the brief description of each chapter are shown as follows:



### **1.9.1. Chapter One**

Chapter one is the introductory chapter giving orientation to the study. The background to the study, statement of the problem, aim and objectives of the study, the theoretical framework underpinning the study, the conceptual definitions, and brief description of the methodologies used in this study are all mentioned.

### **1.9.2. Chapter Two**

The second chapter holds the detailed literature reviewed for this study. The main contents of the literature review are about PCC, factors determining PCC practice, HCPs' PCC practice status, and HCPs' attitude towards PCC. The reviewed literatures are mainly primary researches conducted in various part of the world.

### **1.9.3. Chapter Three**

This chapter is all about the methodologies used to conduct the study. It gives detailed description of the study designs, sampling, instrument designing process, data collection process, quality assurance process, data management and analysis process, ethical procedures; and other issues related to the research methodology. The methodology for the qualitative study and the quantitative study are depicted separately.

### **1.9.4. Chapter Four**

Chapter four is a part of the theses where the findings of the study presented analyzed and discussed in detail. The results of qualitative and the quantitative studies are both combined in this chapter. The chapter presents the results of the study, their analysis and discussions. The results found from the policy document review part are also used in discussion and analysis of this part.

### **1.9.5. Chapter Five**

Chapter four is a chapter where the finding, analysis and discussion of the policy document review takes place. The various Ethiopian policy documents reviewed in this section are all specified. This review tries to show weather the policy documents identified contained issues regarding PCC or Preconception health.

### **1.9.6. Chapter Six**

Chapter six is a chapter containing the guideline to assist the implementation of PCC in Ethiopia health System.

### **1.9.7. Chapter Seven**

Conclusions, limitations, and recommendations of the study are shown in this chapter.

## **CONCLUSION**

The rational for conducting this project, the identified gap to base this project, the methodologies through which the study conducted are described in this chapter. In addition the theoretical frame work selected to guide this study, the significance of the study, and organization of the tresses are also discussed. Based on the organization of the thesis, therefore, the next chapter is a part of the thesis depicting the literature review.

## CHAPTER 2

### LITRATURE REVIEW

#### 2. INTRODUCTION

A normal organogenesis or formation of fetal organ is key issue determining the life time health of the unborn child. This is a critical period taking place from 17-56 days of conception. The growth and development will continue, however, during this period almost all the fetal organs are already formed. Unfortunately most of the couples crossing this critical period may not recognize even that the women are already pregnant (Atrash H.K. 2008). Most of the women may come to recognize their pregnancy after two three months passed. The time for visit to antenatal care is also late. For instance, in Ethiopia, the median month for the first ANC visit is 4.9 month (Fig-2) (EDHS, 2016). It should also be reminded that the vast majority of women in the developing region even didn't attend ANC (WHO 2013).

Various factors may alter the normal developmental pattern of the fetus. These factors may occur before conception, during the periods of conception and post conception. Those factors altering the normal process of the fetal organogenesis during the preconception and early conceptual periods are called preconceptional risk factors (Denny CH, Floyd RL, Green PP, Hayes DK. 2012, and CDC 2012). The existing APO preventive programs like ANC, INC, PNC, all never target this critical period of fetal organogenesis. A number of Irreversible damages happening on the feats will thus not be amenable to modification if ones occur. The only proven EVB intervention to fill the existing gap in the existing continuums maternal and child health care is preconception care (PCC) (WHO 2013, CDC 2006).

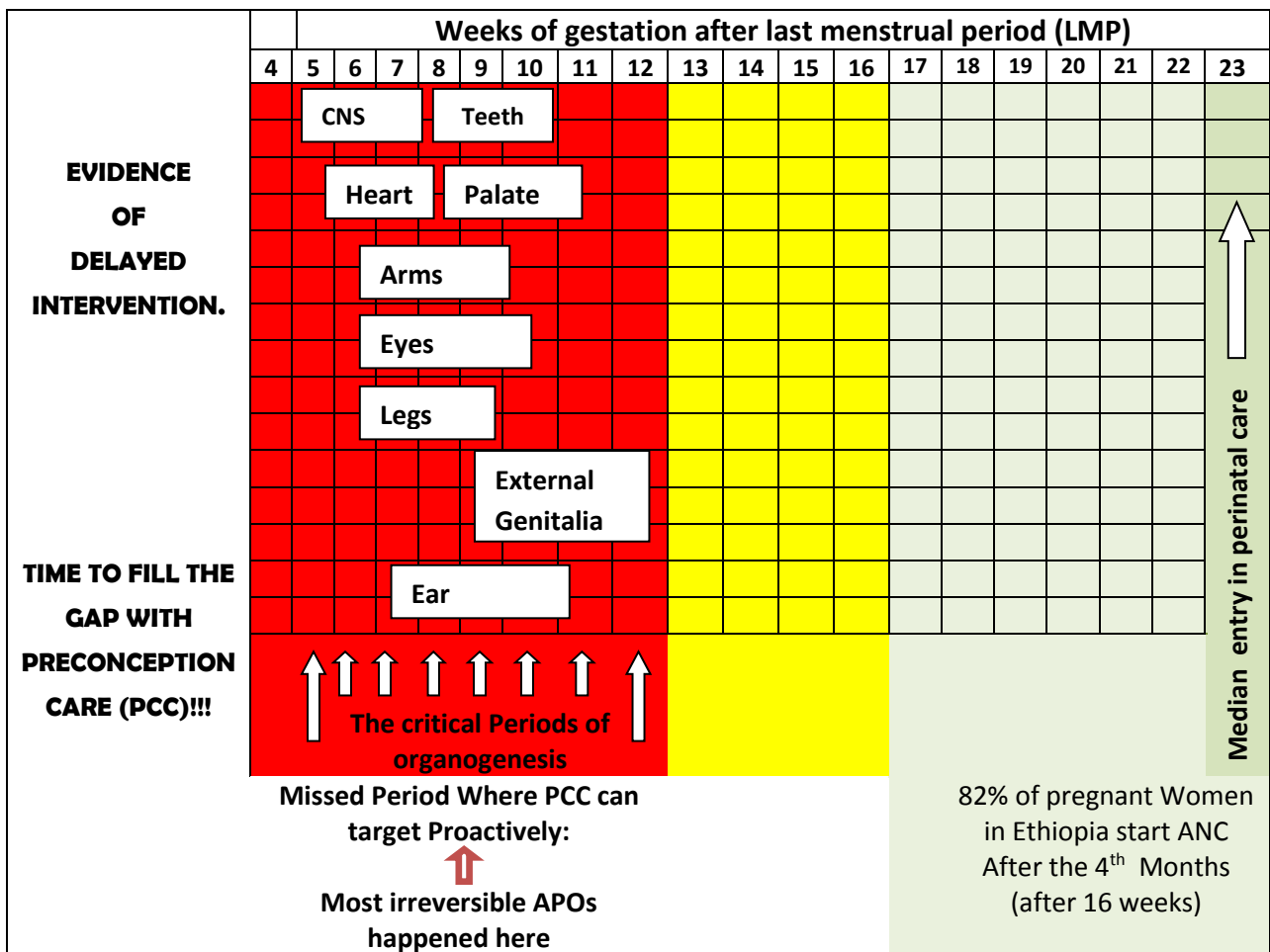


Figure-2: The missed critical periods of fetal development compared to delayed perinatal care intervention in Ethiopia: Missed period where PCC could act proactively. 2017

In this chapter, therefore, a wide account of PCC related literature reviews are given. The literatures reviewed in this article are targeted in line with the objectives of this study. Thus, this review is mainly focused on issues related to status of the implementation of PCC and factors determining the implementation process of PCC. A theoretical frame work was also used to guide the organization of the literature reviewed and findings of the study.

## **2.1. PRECONCEPTION HEALTH**

The health status of a woman before the establishment of pregnancy is termed as preconception health. Preconception health status is an indicator of the outcome of the pregnancy. A woman with good preconception health status is expected to have a normal pregnancy with healthy baby. In the contrary women with poor preconception health status is expected to have miscarriage or pregnancy loss, congenital anomaly, still birth, perinatal death, low birth weight, preterm birth, neonatal death, and Infant death. The other adverse pregnancy outcomes linked to the mother due to poor preconception health are preeclampsia, eclampsia, PPH, APH, maternal anaemia, exacerbation of other pre-existing illness, and maternal death. Optimization of women health prior to conception is, therefore, key to successful pregnancy outcome (Witters I, Bogaerts A, Fryns JP 2010, WHO 2013, CDC 2006).

## **2.2. PRECONCEPTION HEALTH INDICATORS**

In order to determine the preconception health status of a woman or her partner, indicators are needed. The use of these indicators can be used as self-assessment tools and also for monitoring and evaluation of programs targeted on promotion of women preconception health. At an individual level these indicators are valuable to decide on the timing of conception and modifying the underlying risk factor affecting the health of the women. At community or national level, these can serve as evaluation and monitoring tools for preconception health promotion programs. As an example, the US Pregnancy Risk Assessment Monitoring System (PRAMS) is a program established for this purpose (CDC, 2014).

The PRAMS is a program targeting a total of 41 preconception health indicators. A recent report from CDC (CDC 2014) on PRAMS reported 39 of these indicators categorizing in two ten domain preconception health indicator categories (CDC, 2014). The table taken from this article is shown below (Table- 1) (CDC, 2014, Broussard DL, Sappenfield WB, Fussman C, Kroelinger CD, & Grigorescu V .2011)

Table-1: The 41 preconception health Indicators classified in to 10 Domains. Table adopted from (CDC 2014 and Broussard DL. Et.al. 2011)

1	<b>General health status and life satisfaction.</b>	Self-rated health
2	<b>Social determinants of health.</b>	Education; poverty
3	<b>Health care.</b>	Access to and use of health care; access to dental care; reproductive health care; content and quality of care
4	<b>Reproductive health and family planning.</b>	Previous preterm birth; previous fetal death, miscarriage, or stillbirth; inter-pregnancy interval/birth spacing; pregnancy intention; contraception (access, availability, and use); use of assisted reproductive technology
5	<b>Tobacco and alcohol use.</b>	Smoking; secondhand smoke exposure; alcohol consumption
6	<b>Nutrition and physical activity.</b>	Fruit and vegetable consumption; obesity and overweight; folic acid supplementation; exercise/physical activity
7	<b>Mental health.</b>	General mental distress; anxiety and depression; postpartum depression
8	<b>Emotional and social support.</b>	Domestic abuse (physical and mental); adequacy of support
9	<b>Chronic conditions.</b>	Diabetes, hypertension, asthma
10	<b>Infections.</b>	HIV; sexually transmitted infections; immunizations

A woman with history of previous adverse pregnancy outcomes, chronic illnesses, mental disorder, and infection with STI/HIV are at risk of developing APO. In addition those women who smoke cigarette, drink alcohols, exposed to second hand tobacco smoke are also at risk. The risk of developing APO is higher among women with inadequate fruit and vegetable intake, not taking folic acid supplementation, overweight/obesity, lower BMI or underweight, and among those who don't practice regular physical exercise. Moreover, the risk is high among those with poor oral and dental health status, who don't have a reproductive health plan, with poor access to health care service, with low socioeconomic and educational status. The listed preconception health indicators are tools through which one can see and evaluate the preconception status of an individual woman or the community at large (WHO 2013, CDC, 2014, Broussard DL. et al 2011).

### 2.2.1. Alcohol and other substances use

The influence of psycho active substances primarily affects the individual's rational thinking and there by decision. People taking alcohol and other psycho substances usually commit casual and unprotected risky sex causing STI/HIV and unwanted pregnancy (Carson G,

Cox LV, Crane J, Croteau P, Graves L, Kluka S, 2010) In addition exposure of the developing embryo or fetus to these substances especially during the critical periods of organogenesis, it can cause APO. Exposure of the fetus to alcohol cause a lifelong disability called fetal spectrum alcohol disorder (FASD) (Tough S, Clarke M, Clarren S, 2005). The incidence of PB, LBW, and SGA among women taking alcohol and other substances is high (Finnegan L 2013, Wong S, Ordean A, Kahan M 2011). The risk of infertility, disruption in pattern of menstrual regularity, sexual dysfunction, lower sperm count is also greater among men and women taking alcohol and other substances (Finnegan L. 2013, CDC 2014). Since there is no confirmed safe level of alcohol and also other psycho active substances, total avoidance before conception is recommended (Garson G, 2010, CDC 2006, WHO 2012)

### **2.2.2. Tobacco use in all of its forms**

Tobacco use in any of its forms is another most important indicator of the preconception health. Like to alcohol and other substances, the use of tobacco increase the occurrences of an APO and also infertility among both the women and men. (Chandranipapongse W, Koren G, U.S. Department of Health and Human Services 2014). Exposure to tobacco smoke is also known to causing an ectopic or extra uterine pregnancy. Total cessation of tobacco smoking and avoidance of exposure from second hand or environmental tobacco smoke during the preconception period is is highly recommended (Greaves L, Poole N, Okoli CTC, Hemsing N, Qu A, Bialystok L 2011, WHO 212, and CDC 2006).

### **2.2.3. Nutritional and physical activity**

The preconception nutritional status of a woman is made based on the body mass index (BMI). Under nourished women with a BMI of  $< 18.5 \text{ kg/m}^2$  is at a higher risk of giving birth to a baby with SGA and LBW. The risk of maternal anaemia and maternal death among this group is high (Black RE etal 2008, WHO 2004). Those who are overweight (BMI $>25 \text{ kg/m}^2$ ) and obese (BMI $>30$ ) are risk to infertility, having a macrocosmic baby, fetal loss, still birth, congenital anomaly, and PB. The mode of delivery among these groups is usually caesarean section. The risk of developing gestational DM, pregnancy induced hypertension (PIH) or toxemia of pregnancy, gestational diabetes mellitus (GDM), Deep

Venous Thrombosis (DVT) is also high (WHO, 2010, UN Standing Committee on Nutrition Secretariat 2010).

The micro nutrient deficiencies, such as Iron deficiency anaemia, folic acid deficiency, calcium deficiency and Iodine deficiencies are the other risks to APO. Women with Iron deficiency are at risk to develop antepartum haemorrhage (APH), post partum bleeding (PPH) and also maternal death. Those with preconception folic acid deficiency are at risk of giving birth to baby with neural tube defect (NTD) and other congenital anomalies. Those with calcium deficiency are at a higher risk of developing PIH. Those women with Iodine deficiency are also at risk of perinatal death, neonatal death, miscarriage, cretinism, and giving birth to a baby with that is mental retardation (WHO 2006, WHO 2012, UN Standing Committee on Nutrition Secretariat 2010).

Correction of these risk factors after conception may not be success full. It is in fact a delayed and futile action. For instance, in order to avoid NTD, all women with in the reproductive age group are required to take a minimum of 400 mailgram of folic acid per day for minimum of three months before conception (WHO 2006). The antenatal interventions trying to correct Iron deficiency anaemia are also not successful due to noncompliance of women to the daily Iron supplementation. Thus correction of malnutrition, under nutrition, micronutrient deficiencies before conception is fundamental to prevention of APO (CDC 2006, WHO 2012, UN Standing Committee on Nutrition Secretariat 2010, WHO 2006).

#### **2.2.4. Physical Activity**

Physical activity is one of the elements of the preconception counselling recommended to optimise the health of a woman before conception (Lang et al., 2017). A study conducted by researchers from the Public Health School of Tulane University reported a positive birth outcome among women who were physically active prior to conception (Xie et al., 2015). A Guidelines developed by a Royal Australian College of General Practitioners recommend about the need to counselling a women contemplating pregnancy conduct moderate intensity physical exercise regularly(Royal Australian College of General Practitioners 2012). For good pregnancy outcome, there is general recommendation that a women contemplating pregnancy is advised to conduct a minimum of 30 minute moderate exercise



per day for not less than 5 days a week. Nevertheless, conducting an assessment of the woman's physical activity and recommending appropriate level of exercise to their capability is advised (Jack et al., 2008).

### **2.2.5. Previous reproductive health status**

Women with the previous history of adverse pregnancy outcomes such as, eclampsia, pre-eclampsia, APH, abortion, still birth, recurrent abortion, neonatal death, infant death, congenital anomaly, LBW, PB, IUGR, and SGA are all at risk of developing similar APOs in subsequent pregnancies (Stubblefield, PG, Coonrod, DV, Reddy UM, Sayegh R, Nicholson W, Rychlik DF, Jack BW 2008). Women, with the previous history of APO should be evaluated during the preconception period (Oza-Frank R, Gilson E, Keim S A, Lynch CD, Klebanoff MA 2014). Appropriate management of the underlying causes or modification of the avoidable preconception risk factors help to assure normal pregnancy outcome (Witters I, Bogaerts A, Fryns JP 2010, WHO 2013, CDC, 2006).

### **2.2.6. Chronic medical conditions, mental health, medications**

Most of the existing chronic medical conditions can complicate the pregnancy. In turn, the pregnancy itself can exacerbate the existing medical conditions. The medications given to manage these conditions may also have an adverse drug reaction on the fetus. Early identification of the reproductive life plan of women with chronic medical condition is key to provide timely and effective PCC that prevent eminent APOs (Lassi ZS, Imam, AM, Dean SV, Bhutta ZA 2014, Oza-Frank et al 2014, Dunlop AL, Jack BW, Bottalico JN, James A, Shellhaas CS, Hallstrom LH, Solomon BD, Feero WG, Menard MK, Prasad MR. 2008b) . Some of the chronic diseases requiring preconception interventions are discussed below.

#### **2.2.6.1. Diabetes mellitus & anti-diabetes medications**

Women with DM contemplating pregnancy require intensive preconception care (NCCWCH, 2015). The risk of pregnancy loss or miscarriage, congenital anomaly, still birth, PB, macrosomic baby, C/S, and perinatal death is very high. The occurrence of these APOs is largely determined by the haemoglobin A1C (HbA1c) level. As the HbA1c level goes higher than 7, so is the chance of the occurrence of APO. As a result women with DM are advised to first control their blood glucose level (BGL) before conception ((NCCWCH,

2015 , American Diabetes Association 2011, Kitzmiller JL, Buchanan TA, Kjos S, Combs CA, Ratner RE 19 96) .

The incidence of congenital anomalies among babies of women is very high. Fortunately, prevention of congenital anomaly is possible through PCC. Hyperglycaemia or higher amount of glucose in the blood has a teratogenic effect. During the period of organogenesis a fetus exposed to this large amount of glucose will have a chance of developing congenital anomalies. Thus, effective control of BGL since the preconception period is mandatory. The reliable and recommended diagnostic approach to confirm effective BGL control is, therefore, HbA1c level (NCCWCH 2015 ,American Diabetes Association 2011, CDC 2006, Kitzmiller JL 1996, Kitzmiller JL, Gavin LA, Gin GD, Jovanovic-Peterson L, Main EK, Zigrang WD 1991).

The other important PCC consideration for women with diabetes is the need of substitution of unsafe drugs with safe one. Some of the drugs used to treat the maternal DM may adversely affect the fetus. For instance angiotensin *receptor blocker (ARBs) and angiotensin-converting enzyme (ACEs) inhibitors* and statins are contraindicated. Metformin is another alternative that may be continued during the times of preconception. These, therefore, are cases which put the women and her fetus or child at risk of developing APOs (NCCWCH, 2015, Mahmud M, Mazza D 2010).

#### **2.2.6.2. Asthma**

The occurrence of APOs among women with asthma is high (Farahi N, Zolotor A 2013). Pregnant women with asthma may have the probability of developing frequent asthmatic attack. As a result of maternal hypoxemia, the required amount of oxygen cannot reach to the fetus. This in turn result deprivation of oxygen required to the normal metabolic processes taking place in the fetus. The focus of the PCC is, therefore, controlling the asthma before the conception occurs. By doing so it will be easy to prevent common APOs happening as a result of poorly controlled asthma. These include IUGR, LBW, PB, Still birth, and neonatal death as a result of asphyxia (Farahi N Zolotor A 2013, Jack BW, Atrash H, Coonrod DV, Moos MK, O'donnell J, Johnson K. 2008).

### **2.2.6.3. Hypertension & Antihypertensive medications**

Adverse pregnancy outcomes related to both the fetus and the mother are common in poorly controlled hypertension (NCCWCH, 2015, CDC 2006). Women with established chronic hypertension are at risk of a fatal antepartum haemorrhage secondary to placental abruption. A placental insufficiency may result a fetal growth restriction leading to SGA, LBW, still birth and perinatal death. The effect to the woman may include superimposed toxemia of pregnancy and other complications related to hypertension. A primary preconception care consideration for a woman with chronic hypertension is targeted effective control of the underlying hypertension. The other key element is substitution of antihypertensive drug with a safe one. For instance angiotensin *receptor blocker* (ARBs), *angiotensin-converting enzyme* (ACEs) inhibitors can adversely affect the kidneys of the fetus and also cause fetal death. Atenolol can also increase the chance of a LBW baby (Stubblefield PG, Coonrod DV, Reddy UM, Sayegh R, Nicholson W, Rychlik DF, Jack BW 2008, Jack et al 2008).

### **2.2.6.4. Hypothyroidism, seizure disorder, thrombophilia and their medications**

Hypothyroidism, seizure disorder, and thrombophilia are all chronic diseases putting the women and the fetus at risk of developing APO (Winterbottom J, Smyth R, Jacoby A, Baker G. 2009, NCCWCH, 2015, CDC 2006). Hypothyroidism is a disease condition related to functions of thyroid gland. It can cause cognitive impairment to the child. In addition the occurrence of APOs such as PB, LBW, intra uterine fetal death (IUFD) and placental abruption are included. The drugs given to seizure disorders, antiepileptic medications, are teratogenic. Antiepileptic medications with teratogenic effects include drugs such as Valproate, Phenytoin, and Carbamazepine and Phenobarbital. During the pregnancy period frequent epileptic attack is also common. Placental insufficiency, placental abruption, IUGR, pregnancy loss, fetal stroke, and IUFD are common among women with thrombophilia. Especially Warfarin, the medication given to treat thrombophilia, is teratogenic drug that can cause congenital anomaly. Thus, preconception care is a best way to manage the diseases early and substitute the teratogenic drugs with the safe one (Dunlop AL, Gardiner PM, Shellhaas CS, Menard MK, McDiarmid MA. 2008, CDC 2006).

### **2.2.6.5. Mental Health**

Women contemplating pregnancy should be screened for mental disorder especially of depression (Green L, Vais A, Harding K 2013). Women with mental disorders or their partners should also be evaluated for their intention to pregnancy. A mental disorder especially of depression is a case associated with poor pregnancy outcome. A medication for example Paroxetine is contraindicated. Stabilization of mental illness, provision of FP service till the condition managed, and finally substitution of teratogenic drugs with the safe one are among the considerations of PCC (Lassi ZS, Imam, AM, Dean SV, Bhutta ZA. 2014).

### **2.2.7. The immunity status**

The risk of getting infected with infectious diseases such rubella and hepatitis B virus is high. As a result current recommendations of the WHO recommend the need to updating vaccination status of a woman before conception. The need to Immunizing women contemplating pregnancy with rubella, Tetatanous toxoid (TT), and Hepatitis B-vaccines is emphasized. The risk of still birth, induced abortion with medical indication, still birth and giving birth to a baby with congenital rubella syndrome are common among women who are rubella positive (WHO 2011). Mother to child transmission of Hepatitis-B infection is cause for neonatal hepatitis B infection (WHO 2009). Unvaccinated women with TT vaccine are at a higher risk to encounter neonatal death secondary to neonatal tetanus. Updating the immunization status of a woman as one components of preconception care is highly advised (Lassi ZS, Imam AM, Dean SV, Bhutta ZA 2014, WHO 200). The benefit is not only to the contemplated pregnancy but these can also prevent premature death of the women (WHO 2012).

### **2.2.8. Sexually transmitted infections including HIV**

Every year more than 357 million people get infection with curable STIs. The vast majority of the STI cases remain unreported because of is asymptomatic carriers, poor reporting system and also non reporting private clinics. The most common STIs are infections with Gonorrhoea, Chlamydia, Syphilis, Genital herpes, Trichomonas, Hepatitis B, and HIV. STI can cause a number of adverse outcomes. This includes mother to child transmission of the infection including HIV, still birth, congenital syphilis, and ophthalmic infection causing

blindness, neonatal herpes, encephalitis, perinatal hepatitis B infection, LBW, PB, perinatal and neonatal death (World Health Organization. 2016e) .

The danger of contracting HIV and other forms of STIs is not limited to the child but of the uninfected partner. Infertility, sterility, pelvic inflammatory disease, and ectopic pregnancy are all complications of STIs. Screening, prevention, and early management of STIs/HIV are, therefore, another component of the PCC. Managing STIs after establishment of pregnancy is too late to modify irreversible damages as a result of STIs infection (WHO 2013a, Coonrod DV, Jack BW, Stubblefield PG, Hollier LM, Boggess KA, Cefalo R, Cox SN, Dunlop AL, Hunter KD, Prasad MR, Conry JA., Gibbs RS, Hogan VK 2008).

### **2.2.9. Unplanned, unwanted, narrowly spaced, and teenage pregnancies**

Adverse pregnancy outcomes are anticipated, if age is considered, among the teenagers or age < 18 and those who are above the year of 35. The risk of a baby with LBW, SGA, PB and developing PIH is common among the teenagers (Patton GC et al, 2009). In the latter case the risk of having baby with congenital anomaly is high. Similarly, the risk of having baby with LBW, neonatal and infant death is common among babies of a mother with the closely spaced pregnancies (Mastroiacovo P, Nilsen RM, Leoncini E, Gastaldi P, Allegri V, Boiani A, Faravelli F, Ferrazzoli F, Guala A, Madrigali V, Scarano G 2014). The recommended period for spacing consecutive pregnancy is > 24 months. Spacing pregnancy for at list two years gives the child to adequate breast feeding and care while the mother also get sufficient time to increase her Iron store sufficient to sustain the coming pregnancy(Dean SV, Lassi ZS, Imam AM, Bhutta ZA. 2014, WHO 2013a , CDC 2006).

The danger of unplanned and unwanted pregnancy is also the other most important determinant of pregnancy outcome (Darak S, Hutter I, Kulkarni V, Kulkarni S, Janssen F. 2016). The chance of the embryo to be exposed for various preconception risks to APO is high. Most of the women with unplanned and unwanted pregnancy terminate the pregnancy. Making sure the pregnancy is planned, wanted, and having the pregnancy to take place within the recommended periods of pregnancy can help to avoid APO. But the women contemplating the pregnancy need to have optimum preconception health (Patton GC, Coffey C, Sawyer SM et al 2009). Screening the reproductive life plan of every

reproductive aged men and women can help identify and provide preconception counselling (Coffey K, Shorten A 2014). Family planning, then, can be one of the options of PCC to this group of people (Klerman LV 2006).

#### **2.2.10. Exposure to environmental risks and contaminants**

Exposure of the woman to Ionizing radiation, pesticides, exposure to heavy metals such as lead or mercury, and an indoor air pollution with biomass fuel is another factor leading to development of APO. Exposure of women to these toxins and contaminants during the preconception period can lead to miscarriage, stillbirth and anaemia. Contact with a cat litter is also another issue leading to APO. Thus a woman and her partner when contemplating pregnancy should be advised to avoid exposure to these contaminants (Lassi ZS, Imam AM, Dean SV, Bhutta ZA 2014a , WHO 2013a, Chan LM, Chalupka SM, Barrett R 2015, Haruty B, Friedman J, Hopp S, Daniels R, Pregler J 2016).

#### **2.2.11. Genetic conditions**

The other risk factors to APO are problems linked to couples genetic and chromosomal abnormalities. There are number of genetic and chromosomal abnormalities leading to APO. As a result, conducting a thorough history taking and genetic screening is advised (Solomon BD, Jack BW, Feero WG, 2008). Some of these conditions include haemophilia, cystic fibrosis, congenital heart disease, phenylketonuria, sickle cell anaemia, and Tay-Sachs disease. The specific types APOs may vary based on the specific underlying genetic disorder. People with these conditions are at risk of developing APOs such as repeated miscarriage, preterm, neurodevelopmental impairment, hydrops fetalis, IUFD, neonatal death, eclampsia, birth defect, and others are included (Wilson RD, Audibert F, Brock JA, Cartier L, Desilets VA, Gagnon A, Johnson JA, Langlois S, Murphy-Kaulbeck L, Okun N, Pastuck M, 2011, Solomon et al 2008 ) .

### **2.3. PRECONCEPTION CARE**

Preconception care as defined by the WHO is “...*the provision of biomedical, behavioral and social health interventions to women and couples before conception occurs. It aims at improving their health status, and reducing behaviours and individual and environmental factors that contribute to poor maternal and child health outcomes. Its ultimate aim is to*

*improve maternal and child health, in both the short and long term” (WHO 2013a).* Optimization of women health and thereby preventing APO is the goal of the care. PCC alone can't achieve this goal, but possible along with health care packages with in the continuum maternal and child health and also other health care programs. It will only play its part (Dean SV, Lassi ZS, Imam AM, Bhutta ZA 2014, Reeve ME. 2009). PCC is a care given before conception happen. This can be before pregnancy or in between pregnancies. The latter one is called interconception care (CDC 2006, WHO 2013a).

Preconception care is a care given with the consideration of the principles of theory of Life course principles (TRA) and the Public health ecological model (CDC 2006). Since the factors affecting the current pregnancy outcomes are multi factorial the application of PCC interventions is not limited to one clinical visit. The provision of the all interventions of PCC by single clinician is not totally possible. Thus various stake holders will have role in the execution of the PCC interventions (CDC 2006, WHO 2013a).

Preconception care at health care facility level starts with a single question asking the client about his/her reproductive plan (CDC. 2010). Of course, there are some clients coming to the health care facility seeking the PCC. Whether it is client or provider initiated, this will be the first phase to enrol clients in the PCC care (Coffey K, Shorten A. 2014). Enrolment of the client in PCC may take place in any time the client demanded the service. However, to be effective, a women or and her partner contemplating pregnancy need to start the service three months before the anticipated time of conception (CDC 2006).

## **COMPONENTS OF PRECONCEPTION CARE**

### **2.3.1. Reproductive Life Plan (RPL)**

Every reproductive aged individual including adolescent and older ones may have their own plan about when to have a baby, the number of children to have, the time space between children, when to get married, and the like. Some may not have plan at all. The danger of unplanned pregnancy and getting pregnant before fixing the existing preconception risk factors may lead to APO. To break this chain, therefore, asking the RPL of all clients coming to the health care facility for any reason is highly recommended. The first provider initiated entry point to PCC is there for asking single question “*Do you plan to have any (more) children at any time in your future?*” (CDC 2010).

### **2.3.2. Preconception assessment**

Preconception assessment is all about the history taking, physical examination, diagnostic tests and genetic screening tests offered to a client enrolled to service. These can be given based the needs of the individual client. In addition, all of these may not be given on the day of visit (de Weerd S, Van der Bij AK., Cikot RJ, Braspenning JC, Braat DD, Steegers EA. 2002, CDC 2006, WHO 2013a).

### **2.3.3. Preconception counselling and education**

Based on the preconception risk factors and based on the guideline directive, the HCP will provide the PCC counselling to the client (CDC 2006, WHO 2013a). The areas of PCC counselling include,

- nutritional counselling
- the need to screening and prevention of STIs/HIV
- normalization of Body Wight and BMI
- the need to stop smoking and reducing tobacco smoke exposure
- avoidance of alcohol and other psychoactive substances
- avoidance of non prescribed and over the counter medications
- counselling on FP options
- the need of taking folic acid daily
- the need to stabilizing or control underlying medical conditions
- the need to consider the issues of genetic screening
- avoidance of exposure to ionizing radiation, toxins, and contaminants
- the need to updating immunization
- the need to regular dental check up and oral health

### **2.3.4. Prevention and management**

#### **2.3.4.1. *At individual level***

Management and control of the existing medical condition, safe medication substitution, supporting tobacco cessation, supplementation of folic acid and Iron, provision of immunization, provision of FP services, and linking to ANC or making referral to other



centres where the patient get better services are among the preventive and curative services provided at an individual level. (Klerman LV, Jack BW, Coonrod DV, Fry-Johnson YW, Johnson K 2008)

#### **2.3.4.2. *At community level***

The evidence based PCC at community level (WHO 2013a, Shannon GD, Alberg C, Nacul L, Pashayan N 2014) includes salt iodization, fortification of flour with folic acid or iron, and Immunization.

### **2.4. THE IMPLEMENTATION PROCESS OF PCC IN A GIVEN COUNTRY**

Preconception health strategies include aspects related to awareness, knowledge, skills, motivation, opportunity, access, supportive environments, policy development, and ultimately behaviour change (Alberta Perinatal Health Program, 2007).

### **2.5. THE IMPLEMENTATION OF PCC BY HEALTH CARE PROVIDERS**

Providing PCC prior to conception by health care providers is a key intervention to warrant healthier birth outcome (The American Academy of Paediatrics and American College of Obstetricians and Gynaecologists proposed, 2007). Making preconception care practice as part of the daily routine practice of health care providers attending to every reproductive aged person is best opportunity to provide PCC to all individuals contemplating pregnancy (Moos M, Dunlop A, Jack B, Nelson L, Coonrod D, Long R, Boggess K, & Gardiner P 2008) Health care providers are primarily responsible and at the forefront to incorporate up-to-date evidence based clinical practices like to that of PCC. These HCP's such as doctors, nurses, midwives, pharmacists need to have the knowledge, favourable attitude, and skill to provide PCC (WHO 2012, SANDERS LB2009). Nevertheless, few researches conducted on the HPs reported there is poor preconception care knowledge and practice among the HCP's. The WHO & CDC recommend all physicians, midwives, nurses to implement PCC (WHO 2012, CDC 2006).

A study conducted at Japan on family physician denoted that only few family physicians are practicing PCC. 70% of these physicians disclosed their interest in providing PCC.

Nevertheless, they claimed they get little education from the university. They also recommend the need to train undergraduate medical students and also those who are on a specialty training. (Kitamura K, Fetters DM and Ban N, 2005).

A study from Washoe County, Nevada, was a study conducted on HCPs. This study was conducted with the aim of assessing the HCPs PCC practice level. The finding of the survey revealed that only 50% of the providers are familiar about PCC. Out of this 43% reported for practicing PCC (Van E. 2012). Another study conducted at Delaware reported similar result despite their lower levels of practice, these primary care physicians responded that they should provide the PCC counselling service (Kukreja R, Locke RG, Hack D, Paul DA, 2012).

A survey conducted among family physicians in Ontario, Canada reported a better practice of PCC by this segment of HCPs. Most of the physicians involved in the study (78.4) respond that they were giving the PCC service on a daily or weekly basis. Twenty percent claimed for providing service rarely but only a few (1.6%) didn't provide PCC (Best Start Resource Centre, 2009). Physicians who offered the PCC service claimed for giving preconception counselling on alcohol, cigarette and drug use. The next most commonly practiced components of PCC were counselling on Folic acid (97%) and about precautions of medication during the preconception periods.

Another study conducted at UK Barnsley on primary care workers reported poor PCC practice. The study was conducted to assess the primary care workers PCC practice and also their attitude. The providers were, General Practitioners (GP), Nurse practitioners, Midwives, Preconception care and health visitors. Those who mainly involved in the provision of PCC are GPs and NPs. But as the study reported their PCC practice was on opportunity basis and also less than five times per three months (Heyes T, Long S and Mathers N 2004)

A cross-sectional study from Iran was a study that assessed the HCP's knowledge attitude and practice towards PCC. The types of HCPs in this study are medical doctors, Bachelors of Science in Family Health (BSFH), midwives, health technicians, and healthcare social

workers (HCSW). The study reported poor PCC practice among physicians (75%), BSFHs (70%), midwives (64.7%), and HCSWs (52.4%). The study reported that nearly all of the HCPs participated in the study had positive attitude to PCC. But it also reported variation with respect to their level of PCC knowledge (Bayram et al, 2013).

One cross-sectional survey, from Elminia Governorate of Egypt, was a study that reported the HCPs' PCC practice. This study reported that 25% of the HCPs never practiced a component of PCC. Among those who practiced the element of PCC, 75% were found with a poor PCC practice status. The study reported that only 22% of the study participants had good PCC knowledge while 43% had favourable attitude towards implementing PCC (Mosalem et al 2012)

Nevertheless in Ethiopia, to the author's rigorous and systematic literature search, we couldn't find a published research reporting the HCP's PCC related knowledge, attitude and practice.

## **2.6. BARRIERS AND FACILITATORS OF PCC IMPLEMENTATION**

Based on the perspectives of the diffusion innovation theory, specifically the framework FDOIP, the determinants of the PCC Implementation process or ('Innovation Process') are categorized in to five domain areas (Fig- 3). These categorized domains of the frame works are determinants affecting the whole implementation processes of the innovation (PCC). These processes are diffusion, adoption, implementation and continuation. The use of this framework in the current study not only guided the review of the literature but also used to organize the structure of the review work (Fleuren M 2014, Fleuren M et al 2004). Thus, the reviewed determinants to PCC implementation processes are described below.

### **2.6.1. Characteristics of the adopting person (HCP)**

Characteristics of the adopting person (HCP) are an important determinant of the innovation implementation process. Among lists of factors the HCP's knowledge about PCC, his/her skill and confidence to implement PCC, the availability of supporting body to assist HCP practice PCC, HCP's task orientation in relation to PCC, HCP's perception regarding the adherence of the clients to PCC recommendations and their expected level of satisfaction towards the service, the HCPs' level of stress, presence of competing

demands and contradictory goals, and the possible abstinence of the HCP against practicing PCC due to ethical or moral reservation are included (Fleuren M 2014, Fleuren M et al 2004).

Due to paucity of research in this area, only some of the factors are reported by the available articles. The survey from Ontario reported poor knowledge and poor skill as expressed factors related to physicians PCC implementation. In addition, "...not knowing how to bill a preconception appointment" was other barrier mentioned by the physicians. About fifteen (14.5%) of the study participants reported "Not having time" as one but less frequently reported barrier (Best Recourse Centre 2009). Similarly 25% of the survey participant HCPs in Elminia Governorate Egypt mentioned lack of skill and time as a barrier to providing PCC (Mosale et al, 2012). Bayram et.a, in their study among Iranian HCPs, showed the existence of statistically significant association between HCP's PCC practice with their PCC knowledge and attitude towards its implementation (Bayram et al, 2012).

Another qualitative study conducted among general practitioners identified perceived barriers and facilitators of implementations of PCC guidelines. As per the report not having sufficient time to carry out PCC, presence of other competing preventive and curative services demanding the HCP's attention and time were among the determinants (Mazza et.al. 2013).

### **2.6.2. Characteristics of the PCC (Innovation )strategy**

As per the frame work, in this domain, are of number of factors determining the innovation implementation process. The characteristics of the innovation strategy are vital to attaining the goals of the implementation process. Among these factors the available financial resource or budget, presence of payment or reimbursement to the HCP and or other parties directly involved in the implementation process, availability of equipment/supplies and facilities, availability of PCC guidelines/protocols, availability of supervisory or mentorship service to HCPs, time allotted to provide PCC, presence of accountable person for the delivery of the service, presence of participatory planning process to the implementation of PCC, and the opinion of leaders towards the implementation of PCC are included(Fleuren M 2014, Fleuren M et.al 2004).

The study from Egypt, as the rationale to the overall observed poor PCC practice among 75% of HCPs, mentioned the value of training on PCC and having a written plan on PCC (Mosale et al, 2012). The values of resources as a barrier to implementing PCC are well stated from the research conducted on the general practitioner. The general practitioners perception regarding lack of resources is most important barrier. This same study reported the presence of supportive materials, checklists, manuals, billboards as facilitators to raising client's awareness and thereby increasing providers practice and the uptake of the PCC (Mazza et.al. 2013). Study from the UK also reported resource constraints, absence of PCC training, absence of PCC policy and procedural documents as factor hindering provision of PCC (Voorst SV, Plasschaert S, Jong-Potjer LD, Steegers E& Denktaş S 2016).

### **2.6.3. Characteristics of the Organization**

Determinants related to the characteristics of the organizations may also affect the implementation process of PCC. These are factors related to the organizational structure, organizational culture, organizational preparedness and organizational capacity to carry out a given service to the total number of target clients to whom the service is intended. The list of factors under this domain include the process by which the decision is made, the hierarchical relationship, the presence of a formal reinforcement to integrate PCC, actual number of employed HCPs in the organization, the capacity of the HCPs to implement PCC, availability of expertise on PCC, and the total number of potential PCC service users or eligible clients within the catchment area of the HPI (Fleuren M 2014, Fleuren M et.al 2004).

The best resource centre reported “...*family physicians not knowing how to access patients handout on this topic.*” as most commonly mentioned barrier. This seems factor related to lack of mentor or supervisor (Best Recourse Centre 2009). One qualitative study from UK indicated the effect of mixed messages or directives given to general practitioners to execute a given task. Such kind of messages may be barriers to implementing PCC. In addition, this study reported absence of policies, clear PCC guidelines, and unclear order as a barrier to implementation of PCC. Such kind of barriers may cause role confusion amongst practitioners (Mortagy et.al. 2010).

#### **2.6.4. Characteristics of the socio-political context**

Within this domain are list of determinants related to the social and political context. Awareness of the public about preconception health and presence of PCC service, the eligible client's willingness to use or receive the PCC provided, the client's confidence on the capability of the HCP to provide PCC, the client's capacity to pay for the service out of pocket or through insurance, and finally the extent to which the existing policies and legislations support the practice of PCC in Ethiopia are included (Fleuren M 2014, Fleuren M et.al 2004).

Most of the barriers mentioned as perceived by the Ontario physicians were determinants related to the society or eligible to PCC service. Among the reported lists of determinants clients preference for not discussing the issue before conception (30.9%), physicians reluctance to initiate the PCC with the premises that all patients already know it (16%), the existing trained of clients visit to health care when they become pregnant, the issues of unplanned pregnancy, poor patient knowledge, and inability of the clients to pay for the service or poor socio economic status. This study also reported the issue of language barrier that affect the implementation process of PCC (Best Recourse Centre 2009).

The study conducted on general practitioners mentioned about the issues of access, cost to the care and women's access to the care as barriers to receiving and offering PCC. The other barrier identified in this study was the absence of clients visiting health care facility in order to get the PCC servicer (Mazza et.al. 2013).

#### **2.6.5. Characteristics of the Innovation (PCC)**

Within the 5<sup>th</sup> or last domain are determinants related to the nature or characteristics of the PCC itself which is the 'innovation' in this case. The nature of the innovation is very vital to diffusion, adoption, implementation and maintenance of PCC in the countries' health system. Clarity of the PCC procedures or PCC guidelines, Compatibility of PCC with the currently provided services in the health care system, '*Trainability*' or the availability of setup or opportunities to HCP's practical training, '*Relative advantage*' the advantage of PCC over the alternative service, '*Observability*' or availability of HCP practicing PCC in

front of other HCPs or students, extent to which PCC is applicable, relevance of PCC to the patient, potential risk that PCC may pose on the client, and frequency of PCC visits are among the lists of determinants categorized within the domain (Fleuren M et al 2014, Fleuren M et.al 2004).

One of the reasons mentioned for poor or non implementation of PCC was HCP's perceived understanding about the importance of PCC. Even though very less, 2% of the HCPs perceived PCC as not important. This same study stated about the presence of big knowledge and skill gap amongst the study participants (HCPs) (Mosale et al., 2012).

Organized lists of barriers to the PCC implementation processes are summarized within the five domains of the FDOIP (Figure-3). As stated earlier this is a framework adapted from the Diffusion of Innovations (DOI) theory (Fleuren M et.al, 2004).

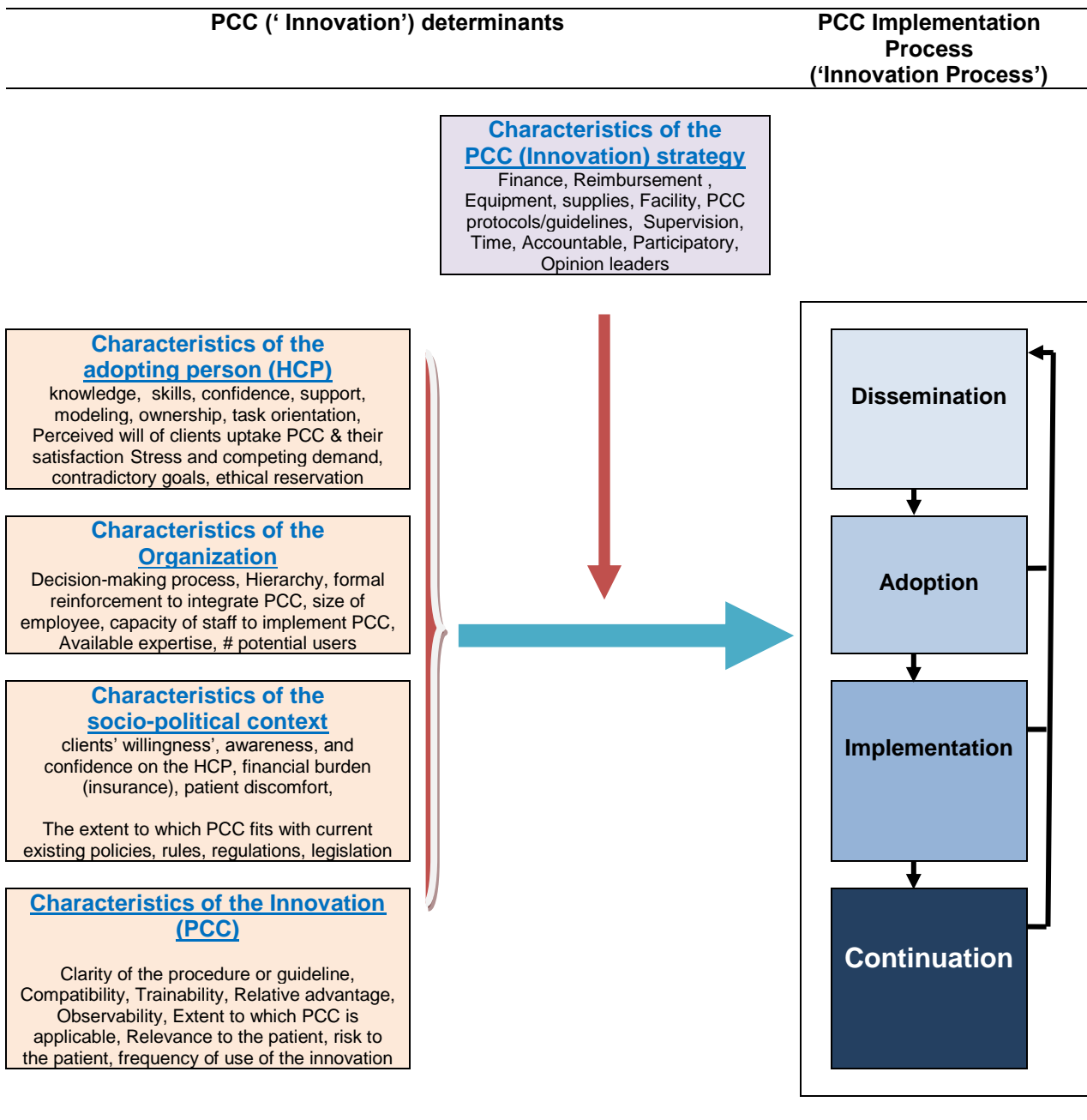


Figure -3: Determinants of preconception care implementation processes organized based on Framework for determinants of innovation processes (FDOIP)



## **2.7. CONCLUSION**

In this chapter, articles related to the objectives of the study are discussed. The reviewed articles in this chapter described preconception health, preconception risk factors leading to APO, PCC, components of PCC, level of the implementation status of PCC by HCP, and factors determining the PCC implementation processes. The next chapter is all about the details and description of methodology of this project.

## **CHAPTER 3**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1. INTRODUCTION**

This chapter is a part of the theses describing the design and methodological approach used in the study. In this chapter are methodologies used to independent studies conducted at different time but combined together with a mixed method study design. The methodologies described in this chapter are, therefore, methods for the quantitative, qualitative, and for policy document analysis. The descriptions are given in the logical and sequential order. Research area and period, sampling and sampling techniques, sampling procedures, measurement tool, data collection procedures, analytical approaches, ethical considerations and the like are described

#### **3.2. STUDY AREA AND PERIOD**

##### **3.2.1. Back ground of the study area**

###### **3.2.1.1. *The Country Profile: Ethiopia***

Participants included in the qualitative study and the Delphi includes professionals, experts program coordinators, lecturers, medical specialty residents, and healthcare managers. The reviewed policy documents are all documents guiding the provision of health services in all regions of the country. The purpose of the study, as indicated in chapter one, is reducing APO in the country through the incorporation of PCC in Ethiopia health system. Thus, the purpose of this study is impacting the entire Ethiopia. In this sense, knowing the background information of Ethiopia in regard to the topic of interest is important. The brief and relevant profiles of Ethiopia are already discussed in chapter one. With the intent of describing the study setting from which we identified the study participants, in here a description of the Ethiopian Health system, the organization of FMOH and the background of the Hawassa city administration are given.

### **3.2.1.2. *The Ethiopian Health System***

There are various definitions given to health system. The most commonly used definition, however, is the definition given by the WHO (Ergo A, Eichler R, Koblinsky M, Shah N. 2011). A health system is defined based on contents forming the system or the purpose or intent the system stands for. As per the WHO definition, health systems includes all the activities by governmental and nongovernmental organizations, families, and individual conducted with the intent of restoring health, promoting health and preventing diseases (WHO 2000). The health system doesn't merely include the health sector office or the national health care system. It also include an individual women breastfeeding hear baby with the aim of promotion or restoration of the health of the baby. It also includes the mass media organization and the journalist working in it broadcasting health information with the objective of disease prevention (WHO 2012, WHO 2000).

The goal of the health system may vary from country to country based on their nationally prioritized health problems and their expectation. (Shakarishvili G, Atun R, Berman P, Hsiao W, Burgess C, and Lansang MA. 2010). The overall health system goals as stated by the FMOH include improved health, responsiveness, social and financial risk protection and improved efficiency (Hsiao WC. 2003). To attain these goals, the building blocks making the overall system should function properly. The six building blocks making the systems include service delivery, health workforce, information, medical products or vaccines and technologies, financing, and leadership and governance (WHO 2007). In addition to these six WHO health system building blocks, Erango etal (2011) adds 'people' as one component of the system.

With the system thinking approach the individual clients', the families', the communities', different governmental and nongovernmental organizations', the national and international organizations' contribution towards the promotion and restoration of preconception health is highly valued (WHO, 2007). Intersectoral collaboration, one of the health policy strategy explicitly stated in the Ethiopian Health policy document is one issue consolidate the systems thinking in practice (FMOH 2015). The value of elementary school teachers, high school teachers and the university professors in providing preventive preconception health education makes them important role players of the system. The organizations hiring these

teacher, the Ministry of Education (MOE), is key in deciding and incorporating preconception health information in the curriculum of the elementary, high school and university courses. It has also role in providing a pre-service training to all HCP's (Ergo A, etal 2011).

The Federal Ministry of Health (FMOH), obviously, is a key part of the Ethiopian health system. The ministry may play important role in the provision of PCC to the public. Developing PCC policy, developing PCC guidelines, developing PCC strategic and operational plans, monitoring and evaluation of PCC, and establishing the setting to the provision of the service are all the responsibilities and authority of the FMOH. All vital sector GOs, NGOs, International organization like the WHO, funding organizations, professional associations, researchers, community leaders, and relevant others can be coordinated through the FMOH to the achievement of nationally targeted PCC goals. In this sense, the incorporation of PCC in the Ethiopian health system is not limited to incorporating PCC in the Ethiopian health care system (FMOH 2015, Ergo A, etal 2011).

The Ethiopian Health system in terms of PCC may be explained in the following way. Content-wise the Ethiopia health systems may include the target population to which the PCC service is meant and the delivery of PCC and preconception health promotion interventions (health education, food fortification with folic acid, salt iodization, etc...). The target population has its own role in the implementation process of PCC. The role played by the population may be listed out in terms of clients seeking PCC, customers of the PCC with their perceived expectation on how they will be treated, the payers to PCC service provided, clients who have the legal right of accessing PCC service, and individuals who themselves practice their own measure to optimize their health before conception (Frenk J. 2010).

The health systems function can also be explained in terms of the WHO's six building blocks stated above. The PCC service delivery, the health care providers and supportive providers of PCC, Information, facilities or equipments and supplies needed to provide PCC, the scheme for PCC financing, and finally the administration and leadership efforts to implement PCC across the country (Ergo A, etal 2011) .

The health systems operation may vary across the various levels it has. The assessment of the system should focus on these distinct levels. There are three known operational levels of health system. At the macro level operations include developing of health policies, setting national health strategies, allocation of resources, monitoring and evaluation, directing and also executing collaborative work with the national and international bodies. At the meso level are operations run by the local district health bureaus and hospitals. The meso level operation is directly linked to the health care provision, actual execution of the health promotion works, implementation of the national policy and guidelines, training of the health care providers, and provision of supportive supervision and mentorship. At the micro level operation includes the role played by all individuals involved in the system and also their interactions. The individuals at the micro level are the clients seeking the PCC, the HCPs, the health service managers, decision makers and all other citizens of the country (Ergo A, etal 2011.).

### **3.2.1.3. *The Ethiopian health Care System***

The structure of the countries' health care systems is organized in the three-tier system. The base is composed of a primary health care unit (PHCU) and primary hospital. The PHCU is designed to serve 25,000 people. It is a facility containing one public health centre (PHC) and five health posts (HP) each designed to serve 5,000 people. Each HP is staffed with 2 women Health Extension Workers (HEW). The PHCU service is targeted mainly at disease prevention and treatment of common cases. The primary hospital is designed to serve 100,000 people. The general hospitals which are in the second level of the health care are facilities serving 1.0- 1.5 million people. At the apex of the pyramid are specialized hospitals. These hospitals in the territory care level are designed to serve 3.5-5.0 million people (FMOH, 2015).

### **3.2.1.4. *THE FMOH and RHBs***

The Ethiopian Federal Ministry of Health located in the capital Addis Ababa and its 9 regional branches offices are settings addressed through this study. Decision makers in relation to maternal and child health, reproductive health, prevention of non communicable diseases and family health are all working in the respective directorate offices of the

ministry. All the directorates' offices are offices responsible to cascade the nationally set policies and designed strategic plan through the regional branch offices to all effectors public health institutions. The main role of the RHBs is execution of the national health policy based on strategic plans. Since PCC contained a cross cutting issues touching the various directorate offices, all potential directorates were contacted. Thus, the whole FMOH of Ethiopia is one study setting to this study (FMOH, 2015).

#### **3.2.1.5. *The Hawassa City Administration and the PHIs Profile***

- **Why Hawassa City Administration was selected for the First phase of the study?**

The first phase of the research, the quantitative study was conducted in Hawassa city administration located at the southern part of Ethiopia. The study was conducted among the health care professionals working in the public health institutions of the city administration. The city administration contained both rural and urban areas. The aim of the first study was to assess if HCPs working in the city are implementing PCC or not.

The intent of this research was to getting an objective finding regarding the HCPs practice of PCC, their knowledge about PCC, and their attitude. Since there is no study reported such kind of information, conducting the study among HCPs working in PHIs of the city administration was taken as best option. The reason for selection of the City was as follows

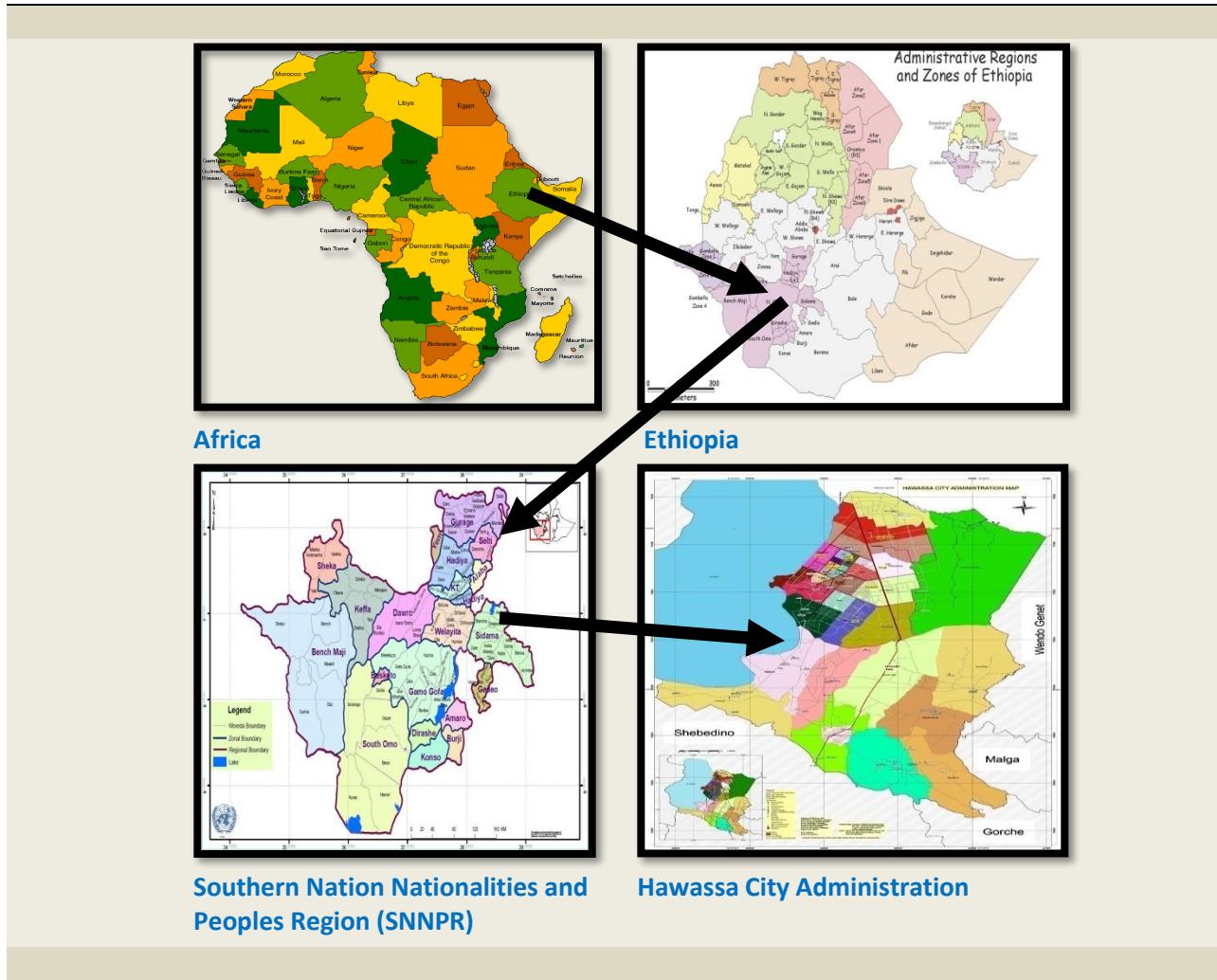
- HCPs working in the government owned health institutions of Ethiopia are all working guided by the national guidelines
- The HCP's assignment in Ethiopia is a process guided by a lottery method. The FMOH is responsible to assign all new university graduate health professionals to every regions of the country. The regions will also conduct a lottery method to assign the HCPs assigned to its zones and Woreda in the zone.
- This professionals are professionals who are originally coming from all regions of the country and graduates of all universities and colleges found in Ethiopia
- Hawassa city is a city administration is a city containing both rural periarban and rural residents and also HPIs.

- The city is the place where the primary investigator of the research project was living. Thus it makes the option more feasible and less costly.

These rationales make the finding of the study more usable and informative. Nevertheless, generalization of the study finding beyond the HPIs working outside of the city administration is never the intent or the interest of this research. Therefore, the selection of Hawassa City Administration was purposive but with logical and technical rationales as mentioned above.

- ***Hawassa city Administration***

Hawassa city administration is a capital city of SNNPR and located 275km South from Addis Ababa (Figure-4). Hawassa city in which 359,358 people are living, according to city's Health Department Estimation in 2017, has been structured by 7 urban sub-cities and one rural sub-city. The urban sub cities collectively have 21 kebeles whereas the rural sub city contained 11 kebeles. The city has 83 both public and private health institutions. In detail these are one public university comprehensive specialized hospital, one public general hospital, 4 private primary hospitals, 9 public health centres, 17 public health posts and 51 private clinics (HCAM 2016).



**Figure-4:** Maps to assist identification of Ethiopia and Hawassa City Administration

- **Public health Institutions In Hawassa City Administration**

In the city are two public hospitals (PHOs) and 9 public health centres (PHIs). The Hawassa University Comprehensive Specialized Hospital (HU-CSH) is the largest hospital in southern Ethiopia with more than 300 beds which renders service to both the people in region and other people coming from the neighbouring region. It provides specialized services and comprehensive health services. The outpatient department consists of 17 rooms and inpatient service consists of 5 main departments. The average number of patients flow at the OPD is more than 200 people per day. Adare General Hospital is 2<sup>nd</sup> level hospitals receiving referrals from the nine PHCs. This is relatively medium scale



hospital designed to provide general health service to people of the city. The nine PHC are all primary care units giving the curative, promotive and preventive services. Under each of these PHCs are 17 Health Posts where health extension workers are working. These Health posts are designed to serve about 5000 people. Their focus is on health education and preventive services (HCA 2016).

All the PHIs give a maternity care service. The maternity cares include perinatal, Intranatal and postnatal care services. The 9 PHCs are giving basic essential obstetric care (BEOC). The hospitals are providing comprehensive essential obstetric care (CEOC). The CEOC is a care that adds a caesarean section (C/S), blood transfusion and anesthesia services in addition to the BEOC services. Proceeding six months before May 2017, there were a total of 4,780 deliveries reported from HU-CSH (2,073), Adare General PHO (2,022), Adare PHC (313), Millennium PHC (311), and Tilte PHC (61) (HCA 2016).

- ***Health Care Providers (HCP) working in the PHIs***

During the study period, there were a total of 1239 HCPs working in the PHIs of the city. Out of this, 516 HCPs were employees of the HU-CSH. With respect to their professional category, in this PHIs, there were a total of 106 Doctors, 826 Nurses, 60 Health Officers, 95 midwives, and 142 health extension workers (HEW). The urban health extension workers are primarily nurses working the works of community nurses but specially trained with short term training to deliver the countries' special primary health care package (HCA 2016).

#### **3.2.1.6. Study period:**

The first phase of the study, the quantitative study, was conducted from May to June 2017. The qualitative study was conducted from September- November 2017. The policy document review was conducted from May - September 2017.

### **3.3. STUDY DESIGN**

These is study a crosssectional descriptive Mixed Method Research (MMR) which use explanatory sequential design. We initially conducted a quantitative study to assess the level of HCP's PCC practice and factors affecting their practice. Subsequently the

qualitative study was conducted. The aim of the qualitative study was to explain why the results obtained in the quantitative study happened that much? This part of the study was very helpful to get an in-depth understanding about determinants of the implementation processes of PCC in the country (Polite DF, Beck CT 2004:14).

### **3.3.1. The quantitative study**

The study conducted during the first phase of the project was a quantitative study. This was institution based study conducted among HCPs working in PHIs of Hawassa city administration. The study was conducted to determine the level of HCPs' PCC practice and factors affecting their practice. Since the survey was conducted on representative sample generalization of the finding to the study population was possible. Generalization of the finding from the sample studied to the population is only possible by quantitative study (Polite DF, Beck CT 2004:14, Green J, Thorogood N 2004:197). Determination of the degrees of the association of factors with the HCPs' PCC practice through this study helped us identify key factors demanding attention. Thus, this is the other advantage of the quantitative study conducted in the first phase.

The findings of obtained in this phase of the study were helpful to guide the second phase of the study. Those finding requiring further explanation were identified during this phase. This phase was also helpful to identify the potential participants of the qualitative study. These are among some of the benefits of the sequential explanatory mixed method research design (Migiro & Magangi 2011:3759).

### **3.3.2. The qualitative study**

The qualitative approach is best option in assessing the lived experience of people. It is more suitable to the in-depth understanding of particular phenomenon (Sandelowski, 2000:334). Through this approach, on the second phase of the study, numbers of barriers affecting the implementation processes of PCC in Ethiopia were identified. Particularly, those findings of the quantitative study that require further explanation were discussed in detail. The finding of this study, therefore, helped in complimenting and also strengthening the findings of the first phase of the study.

A policy document analysis was also the other approach used to answer for a research question... *'Is there any documented policy guiding the implementation of PCC in Ethiopia?'* Policies are authoritative statements for action. The type direction and contents of the countries health care services are the results of the existing policies (WHO 2017d). The theoretical framework used to guide this study acknowledges policy as one of the factor influencing the EVP implementation process (Fleuren M et al 2004, Fleuren M etal 2014). The empirical evidence based answer to correctly respond to this research question is attainable through the policy document analysis. Getting this answer can clearly shows the policy gaps.

The final task accomplished using the qualitative approach is the validation work of the first and second draft guideline developed by the author with the panel of experts. The first draft guideline was developed based on the findings of the current studies and the extensive literature review made. Using the Delphi technique, the recommendations given by these experts was used to refine and finalize the guideline developed to assist the incorporation of PCC in Ethiopian health system.

The data for the qualitative study was collected from purposively selected and voluntary participants. These used in-depth interviews with key informants, a focused group discussion and Delphi technique. Qualitative approach is an approach based on the naturalistic paradigm that appreciates the value of the researchers and the study subject's interaction for better understanding of the subject matter (Polit DF, Beck CT 2004:15). The application of qualitative study in health systems research is highly valued especially for implementation researchers. Through qualitative study it will be easy to understand the possible barriers for an integration or implementation process of a given innovation or practice (Sijpkens MK, Steegers EAP Rosman AN 2016).

### **3.4. RESEARCH METHOD**

The research methods are discussed based on the various phases of the study. However, some of the methods are discussed in combination. The methodologies for the four phases of the study are described below

### **3.5. PHASE ONE: RESEARCH METHOD TO THE QUANTITATIVE STUDY**

#### **3.5.1. Population**

Population, in research, is the composition of people or other things sharing similar characteristics and living in a particularly defined area (Polit & Beck 2013:306). The inference of a finding from studied sample can be applicable to the population from which the sample was taken (Bruce et al 2008:133, Fathlla 2004:50). The study population in the current study will be discussed in each phases of the study.

##### **3.5.1.1. Study population**

Health care professionals working in the randomly selected PHIs of Hawassa city Administration were all the source population

- ***Inclusion and exclusion criteria:***

- **Inclusion criterion:** All HCPs selected with the random sampling technique and who consented to participate in the study were all included
- **Exclusion criteria:** Those HCPs served the PHI for less than 6 months were excluded

#### **3.5.2. Sampling**

##### **3.5.2.1. Sample size determination**

Sampling is a process of selection of the individual from the study population. Samples are therefore members or subsets of the study population sharing similar characteristics with the entire population (Polit & Beck 2013:306).The minimum sample size required to the study was determined by using a single population proportion formula and proportionate multi-stage stratified sampling technique (Mitchel andJolley 2010:284-285). On a single population formula, the margin of error or the  $\alpha$ -level was fixed at 0.05 with confidence Interval (CI) of 95%. Since we couldn't get similar research conducted using the same validated instrument in the same similar socio demographic context, we decided to assume 50% estimated proportion of HCPs practicing PCC. The detail of the computation of the sample size and the procedures are depicted below.

We also calculated the *design effect (DEEF)* using the following formula i.e.

$$\begin{aligned} \text{DEFF} &= 1 + \delta (n-1) \\ &= 1 + 0.169(5.5-1) \\ &= 1.76 \end{aligned}$$

Where:  $\delta \Rightarrow$  *interclass correlation coefficient (ICC)*

The *interclass correlation coefficient (ICC)* or  $\delta$  was calculated from our cluster data by using SPSS and it was found 0.169.

$n \Rightarrow$  The *average size of clusters (n)* was  $11/2=5.5$ .

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In this way, we calculated the design effect to be 1.76. Therefore, decided to take a design effect of two. Considering a 10% non response rate the final minimum size was 647 HCP's working in PHIs of Hawassa City Administration. The step by step process of the minimum sample size determination is discusses below.

The formula for single population proportion was first used to determine the initial minimum sample size ( $N_i$ ) requires. Thus, ( $N_i$ ) =

$$N_i = \frac{(Z \alpha/2)^2 \times P(1-P)}{d^2} = \frac{(1.96)^2 * 0.5(1-0.5)}{0.05^2} = \underline{384 \text{ HCPs}}$$

- Where  $\alpha$  => Margin of error = 0.5  
 $P$  => Estimated proportion of HCPs implementing PCC=50%  
 $d$  => The precision required on either side of the proportion=0.05  
 $Z$  => The cut off value of the normal distribution. It is percentiles of the standard normal distribution corresponding to 95% confidence level, which equals to 1.96 (z value at  $\alpha = 0.05$ )

Since the total number of HCPs working in PHIs of the study area was 1239, the population correction factor was considered (Daniel WW 2009:142). Therefore,  $N_f$ =

$$N_f = \frac{N_i}{1 + N_i \div N} = 384 / (1 + 384 \div 1239) = 293.15 \approx \underline{294 \text{ HCPs}}$$

- $N_i$  => initial sample size required for large population (=294)  
 $N_f$  => Final sample size (?)  
 $N$  => Total number of HCPs working in PHIs of the study area (= 1239)  
 $DEFF$  => Design effect=1.76  $\approx$  2

The last minimum sample size ( $n$ ) taken to the study was calculated

$$n = (N_f * 2) + 10\% \text{ of } (N_f * 2) = 294 * 2 = 586 + 59 = \underline{647 \text{ HCPs}}$$

### 3.5.2.2. Sampling Technique and procedure

Using the multistage stratified sampling technique, we randomly selected study participants proportional to their number and profession (Figure-5 and Table-2). At the first stage, using lottery method, we selected three PHCs and we also include both the general and the universities' comprehensive specialized Hospitals. These were the only secondary and tertiary level hospitals found within the jurisdiction of Hawassa respectively. At the second level each participant fulfilling the inclusion criterion was selected from the respective stratum where he/she belongs using the sampling frame.

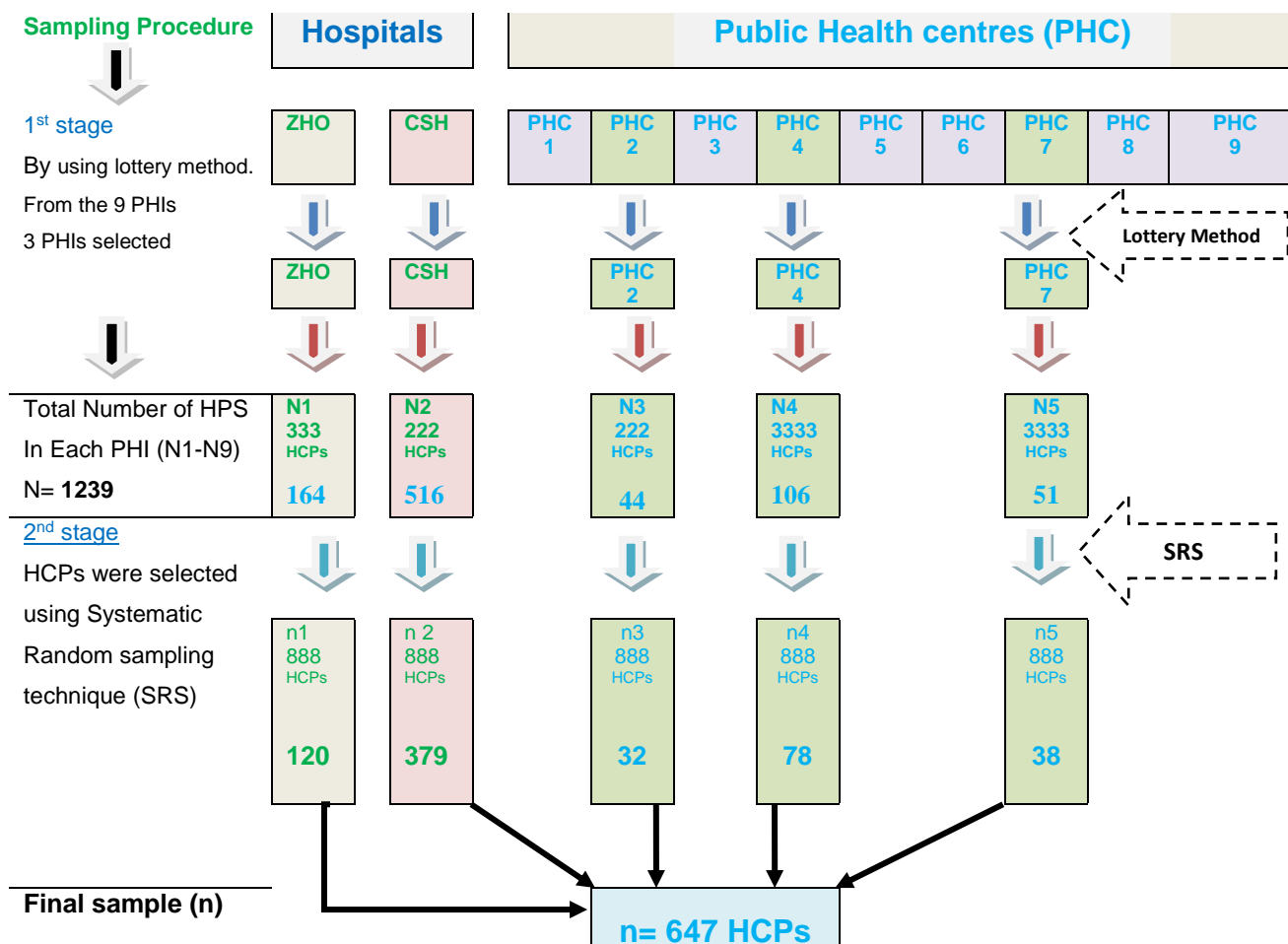


Figure- 5: Flow chart depicting the sampling procedure to select health care professionals attended in the study.

The proportional allocation of HCPs based on their number and professional category is indicated in the following table. The sampling frame was the employers' register (Table-1).

**Table- 2:** Proportional allocation of health care providers in the final sample determined for the study

List of Health care Providers (HCPs) working in the randomly selected PHIs	Total Number of HCPs in randomly Selected PHIs	Number of proportionally selected HCPs
Health Extension Worker Nurses (EHS Nurse)	74	77
Public Health Officers (PHOs)	29	32
Clinical Midwife	62	52
Public Health Nurses, (Diploma PHN)	22	26
Nurses (BS.C)	204	111
General Practitioner Medical Doctor (MD, GP)	63	32
Specialists Medical Doctors (Sp. MD)	53	26
<b>Total</b>	<b>881</b>	<b>647</b>

**Note:** The total number of all PHIs working in the 11 PHIs of the City Administration are 1239

### 3.5.3. Measurement tool

The study was conducted using validated and pretested self-administered instrument, titled '*Health Care Providers' Preconception care Knowledge Attitude and Practice Questionnaire (HCP's PCC-KAP-Quest)*'. This was developed by the PI of this study by reviewing different literatures. The questionnaire was first prepared in English and then translated Amharic. It was then translated back to English. The questionnaire administered for the actual data collection was the Amharic version. The instrument used for this study was both validated, quality checked and pretested. The details of its contents, the validation and reliability test results are discussed below.

The questionnaire includes questions asking about the HCPs' socio-demographic information's, items assessing HP's PCC knowledge, PCC practice and attitude towards PCC, and also items regarding other factors contributing to HCP's PCC practice. The contents of the instrument are discussed as follows.

HCPs' socio-demographic characteristics: This include sex, age, marital status, years of education, monthly income, primary profession, educational level, service year, and type of department where the HP is working.

The HCP's knowledge regarding PCC: The knowledge measuring items are 18 Questions. Among the alternatives given to each of these questions, there is only one correct answer. *Those who correctly answered 75 %+ of these items would be labelled as HCPs with 'high PCC knowledge'. Those who scored 50% -74% were HCPs with 'medium PCC knowledge'. The remaining, who scored < 50% were titled as HCP's with 'low/poor PCC knowledge'. For analytical purpose, those HCPs who scored high and fair PCC knowledge were merged altogether to another category called 'HCPs with good PCC knowledge'.*

The HCPs' attitude towards PCC: This was measured using 10 questions with possible five point Likert scale responses ranging from "*strongly disagree*" to "*strongly agree*". These questions are designed to measure the three core elements of an attitude. These items related to cognitive domain, affective domain, and HCP's tendency towards implementing PCC (Raina S 2013). Based on the overall mean score, those who scored above the mean were considered HCP's with favourable attitude towards PCC and those scored below "with unfavourable attitude.



**Level of HCP's PCC practice (Level of HCPs' PCC Implementation):** This was measured with a total of 36 questions measuring the frequency with which they practice each PCC practice components. Their response to these questions was captured with five point likert scale responses such as “Not at all”, “rarely”, “sometimes”, “often times”, and “always”. The categorization of their responses was also made based on the overall mean score. Those who found to practice above the mean score were taken as “HPs with good PCC practice” and those who scored below the mean as ‘HPs with poor PCC practice. To further describe the level of provider's PCC practice, we classified those who scored < 50% of items measuring PCC practice as practitioners demonstrating ‘low level of PCC practice’. The remaining those who scored between 50%-75% and those scored > 75% are categorized as providers with a medium and higher level of PCC practice respectively.

**Additional Information:** The Instrument also contained questions regarding the source of Information about PCC, 2 questions about HCP's Reproductive Life Planning (RPL) screening practice, 9 questions that assess HP's previous in-service or pre-service training experience on the contents of PCC, 10 questions to assess HCP's access and possession to resources that assist the delivery of PCC, 1 question to identify HCP's suggestion on 'who should provide PCC?' and 1 question on 'where PCC should be Provided?'

### **3.5.4. Validity and Reliability of the instrument**

#### **3.5.4.1. Validity**

Validity refers to the capacity of the instrument to accurately measure what it is supposed to measure (Polit & Beck 2008:768). The clarity, relevance and unambiguousness of the questions in the survey tool are key points determining the instruments **face validity**. The validity of a given instrument or survey tool is evaluated based on the number of questions it contained to measure the entities what it is supposed to measure. In this sense, a survey tool should have complete items. If it fulfilled these criteria, the questionnaire can be said it is **valid content wise**. Having a content validity alone doesn't make the questionnaire valid. It should also need to have good face validity (Bowling & Ebrahim 2005:398; Bruce et al. 2008: 172-174).

The validity of the survey instrument, therefore, assesses based on its **face** and content validity. This was conducted by using four panels of experts. The validation work was conducted before the pilot study. The composite content validity index (CVI) of the instrument, as rated by the panel of experts, was 92.4%. The Instrument's face validity was checked by the panels of experts, and also checked on other six HCP's. The face validity was assured by checking the instrument in terms of its clarity, ambiguity, and simplicity. The CVI was good score indicating the instrument's validity and experts do also confirmed the clarity, simplicity and unambiguousness of the instrument. However, some minor comments given by the panels of experts and HCPs were all incorporated before the pilot testing.

#### **3.5.4.2. Reliability**

Reliability of the instrument is its capacity to give same result while measuring the same thing repeatedly. A reliable instrument is capable of giving accurate and similar measurement to a mater measured in different times or occasions (Bruce et al 2008, Kothari 2004). Reliability of a self-administered instrument was measured in terms of *stability*. The Instrument's stability is all about its capability to provide consistent results with repeated measure of same variable under similar context. In order to assure the reliability of this instrument or a Cronbach's  $\alpha$  test was applied. This test is a coefficient that test or tells about the internal consistency of a given measurement tool. The coefficient of  $\alpha$  is a value that range between 0.0-1.0. A score of  $\geq 0.7$  imply the instrument is acceptable or reliable. Those with score less than that denote there is no consistency measurement (Polit DF, Beck CT 2004:419).

The Cronbach's  $\alpha$  value to our instrument was measured for two components of the instrument that measured the altitude of HCP's towards PCC practice. The Cronbach's  $\alpha$  test result was 0.725 and 0.945 respectively. These composite score results denoted the instruments' internal consistency with the coefficient of alpha levels above the minimum acceptable level. This value is the approach through which the instrument was declared reliable.

### **3.5.4.3. Bias**

In order to reduce potential bias or possibility of any intrusive influence causing a distortion on the final results or findings of the study, the following precautions were considered (Polit and Beck, 2008). First at a wider and extensive literature review was made before designing the questionnaire. The review was also guided by a theoretical framework that helped to consider all possible factors determining the dependent variable. In addition, the effect of HCP's potential recall bias was minimized by asking the HCP's day to day practice. In addition, the option "don't remember" was also given. To avoid the possibility sampling bias, a minimum sample size sufficient enough to study the objectives of the study was determined. The design effect used, techniques used to assure randomization, proportionate allocations of participants were also means to insure representativeness there by minimize sampling bias.

### **3.5.5. Pilot testing of the instrument**

A pilot study is a small scale study conducted on selected individuals sharing similar characteristics with members of the population. It is conducted with the objective of refining the study design thereby enhances the quality of the study (Fitzpatrick JJ, Wallace M. 2006:470). Thus, the pilot study of the instrument was conducted among 65 HCPs. This number is equivalent to 10% of the sampled study. This study was conducted in another nearby town called Shashemene City. HCPs working in the PHIs of the city were included. Included in this study were Doctors, Nurses, Midwives and Health Officers. Before the actual data collection one day training was given to the data collectors on how to facilitate the pilot test. After the pilot test data collectors would get a feed back of the study participants. Some minor comments obtained at the pilot test were used to increase the quality of the instrument.

### **3.5.6. Survey Administrators**

The survey administrators for the quantitative study were two B.Sc. Nurses, one Health officer, one 2<sup>nd</sup> year Master of Public Health student. There were three supervisors. These

were one Medical Doctor, one Midwifery tutor, and one pharmacist. The PI was the main supervisor of all.

### **3.6. METHODS FOR QUALITATIVE ANALYSIS**

#### **3.6.1. Source population**

The second phase of the study, the qualitative study and the Delphi techniques used to purposively select study participants from the countries' health care system. Representatives from all directorates of the FMOH were involved. Those who expected to be knowledgeable highly experienced key individuals working in the all directorates of the FMOH, the directorates regional branch offices, Zone and Woreda level branch offices and experts in university are all considered. KII from the HCPs (Doctors, Nurses, Midwives, Health Officers) working in PHIs of Hawassa City Administration are also involved. The purposive maximum variation sampling techniques was used to get understanding about the determinants of the implementation processes of PCC in Ethiopia.

#### **3.6.2. Data management and Analysis**

The data was checked, coded and entered in to SPSS version 20. The template for the data entry was prepared by the author of the PI. Then a statistician performed the data entry. To insure the accuracy of data entry, close and continuous monitoring was made. The type of analysis used in this study includes univariate, bivariate, and multivariate analysis. The analysis was made based on the specific objectives. Thus, variables of the study analyzed using descriptive and inferential statics are discussed below

##### **3.6.2.1. Analysis made using descriptive statics**

###### **➤ Analysis of the socio demographic characteristics:**

These are analyzed using frequencies, proportions, percentage, means, mode, variance, and standard deviation.

➤ **Analysing the HCP's Level of PCC knowledge**

The responses for the 18 questions had three options (Annex-II). During the analysis, the correct answer was re-coded to '1' the wrong options are also recoded to '0'. The summation of the recoded seventeen Knowledge questions would, therefore, determine the maximum possible scores of every HCPs participated in the study.

➤ **Analysing the HCP's attitude towards PCC**

The items designed to measure the HCP's attitude towards PCC were 10 items. Five of these items on the questionnaire were negatively phrased (reverse-phrased). Before the analysis these were reverse-scored. This way, the maximum possible score for each item was '5' and to the unfavorable '1'. The total sum of the scores to the 10 attitudinal measuring items will give a score ranging 0-50. Those who scored above the mean and above were all taken as HCP's with Positive or favorable attitude towards PCC, while the others with negative or unfavorable attitude towards PCC.

➤ **Analysing the HCP's Level of PCC Practice**

The overall questions measuring the HCP's PCC practice are questions with possible 5 point likert scale. These are option number (OP#) 1- Never, OP#2- Rarely, OP#3- Sometimes, OP#4- Often, and OP#5- Always. Before the analysis those who selected OP# 1 & 2 were recorded to '0' and those who practiced an item with option OP# 3-5 were recorded to "1". The possible score for an individual HCP is the summation of the 36 items coded either with '0' or "1". This will give a maximum possible score of 36. Then, the mean PCC practice score for the total study participants was computed. Those who scored above the mean score were categorized as 'HCP's with good PCC practice' whereas the remaining with poor PCC practice.

### **3.6.2.2. Analysis made with inferential statistics**

#### **➤ Bivariate Logistic regression analysis**

Using the bivariate logistic regression analysis, all potential factors influencing associated with the health care providers practice were checked. The HCP's PCC practice was a dichotomous variable. On the SPSS, the code given to "HCPs with Good PCC Practice" was '1' where as '0' was used to code a "HCPs with Poor PCC Practice". The bivariate analysis was done one by one. to determine the cruds odds ratio (COR) for each variable with 95% CI.

#### **➤ Multiple Logistic regression analysis**

Those variable with their COR < 0.25 were all considered to be taken to the next model. The next model of the analysis, multiple logistic regression analysis, was run with the following considerations (Hosmer, DW, & Lemeshow S 2000). Models were built by using stepwise backward method of model building technique. This method was chosen because of shorter computation time it takes while running the models and can give chance for variable after running (Hox JJ 2010). In the multiple binary logistic regression model the effect of each independent variable on the dependant variable, 'HCP's PCC practice status', were assessed by controlling for the possible confounders using a stepwise backward type of model development. Factors that were insignificant in the stepwise backward model development were removed one by one.

Use of model diagnostic statistics is important to assess adequacy of the model. Presence of possible confounders and interaction effects was investigated by computing relative changes on  $\beta$  coefficients at a cut off point 15% (Bursac Z etal 2008). During stepwise backward model development the predictor variables that bring a change on the  $\beta$  coefficient which was greater than 15% was checked for their interaction effect by generating a new variable from the product of the two variables; if the interaction term, the new variable, is found to be insignificant/ P-value > 0.05/ it was removed from the model

and the variable therefore considered as a confounder and will be kept in the model. But if the interaction term, the new variable, is significant was kept in the model.

Goodness of the models was also tested by diagnosing correctness of formulation of the models by using Hosmer-Lemeshow test and the one which was found to be greater than the significance level (p value =0.05) was accepted. If either of the models fulfils this criterion the one which is highly insignificant one was taken (Hosmer, DW, & Lemeshow S 2000).

### **3.7. PHASE TWO: RESEARCH METHOD TO THE QUALITATIVE STUDY**

#### **3.7.1. Research population**

The research population for this study includes all HCPs working in public health institutions of the Hawassa City Administration and all experts, program managers and decision makers working in the Ethiopian FMOH Directorates and also its regional branches offices.

#### **3.7.2. Sampling**

The reason for conducting the second phase qualitative study was for the sake of getting further explanation regarding findings of the first phase of the study. Those HCPs, experts, program managers, and decision makers believed to poses more knowledge and experience were considered fit for the purpose. To do so, the study employed a purposive sampling technique to include study participants until data saturation attained. Data saturation is a state remarked by repetitiveness of the information and cessation of new emerging ideas (Mason 2010:13). The total number of the study participants was 58. This figure was the sum of 46 FGD discussants and 12 individuals participated in the key informant interview. The total number of participant in a given FGD ranged from 6-8.

To assure representativeness of the sample and getting the views of various HCPs, experts, managers, and decision makers a Maximum Variation Sampling method was used (Kitto, Chesters & Gribich 2008:244). The study participants purposively selected to be involved in the focused group discussion (FGD) and the in-depth individual interview (IDI) were all helped to get a comprehensive understanding of the determinants of the PCC

implementation processes. They also suggested potential facilitators to the implementation of PCC in the country.

### **3.7.3. Data collection tool**

A semi structured interview guide was prepared by the author based on the literature review and objectives of the study. This instrument was used to facilitate the FGD and guide the KII (annex X &XII). This semi structured discussion guide was not pretested.

### **3.7.4. Data Collection process**

The principal investigator was responsible to the collection of the data for both FGD and KII.

#### **3.7.4.1. *Focus group discussions***

During FGD facilitation time, one assistant was there to assist the PI with note taking and logistic facilitation. The discussion was all made in Amharic language. The place for FGD was in familiar places where the participants were working. The discussions were all made in a separate room that were adequate enough to accommodate all the FGD participants and allows a circular or semicircular seating. The room choice however considered the preference of the participants. In each place, a well illuminated, ventilated, and quite room was selected to facilitate the discussion and the audio recording. This helped to facilitate discussion and audio recording.

#### **3.7.4.2. *Key Informant interviews***

The KII was made with the same instrument used to the FGD facilitation. The PI conducted the IDI to collect data from the key informants by going to the place where they working. The PI also took a field note. The same to the FGD, the interview was made In Amharic using the same semi structured discussion guide. The average time for the KII was taken about 25 minutes.



### **3.7.5. Qualitative data analysis**

A meticulous verbatim transcription of the audio taped interview and FGD data was made by a person of good Amharic language skills. The transcript was then translated from Amharic to English language by an experienced English teacher who specializes in English language with the MA level education. The verbatim transcription and the meticulous translation were used to grantee the accuracy of the original messages of the KII interviewee and FGD discussants. Verbatim transcription is the first step of a qualitative interview data analysis to assure accuracy of the original data collected (Polit & Beck 2012:557).

The analysis employs thematic content and framework analysis approaches. By using the qualitative thematic content analysis approaches, the study participants perceived reasons to and explanation to determinants to non-implementation of PCC were identified. The Frame work analysis was used to the organization of various factors identified within the domains of the framework (Green & Thorogood 2009:202-208).

Unlike the quantitative data analysis, qualitative data analysis usually starts from the data collection period and continues across the interpretation and report writing (Creswell 2009:184). In the current case, the analysis begins with listening of the audio taped data reading and carefully reading the transcripts. The next step conducted was the qualitative thematic content analysis. The thematic analysis begins with identification of relevant pieces of information or coding. The relevance of the information labelled or coded from the transcript was made based on the objectives of the study, the frequency or degree of repetitiveness with which it occurs, if the interviewee or discussant states that it is too important, and based on its relation with lists of factors identified with the previous research findings. Those codes that can come together were merged to form a new code or merge with previously identified similar or closely related code. The final mutuality exclusive codes which could not be reduced to any form were the main and final themes used in the study. Finally, these themes were categorized within the domain categories of the FDOIP frame work (Fleuren M et al 2004, Fleuren M etal 2014).

### **3.8. VALIDITY OF THE QUALITATIVE DATA AND ITS INTERPRETATION**

#### **3.8.1. Trust worthiness**

Trustworthiness or rigor of a qualitative research is one of the most important issue with regard to checking the validity of the qualitative data collected and its interpretation. Trustworthiness implies the extent to which qualitative data is worth believing (Bailey, CA. 2007). The process of ascertaining correctness of the qualitative data and its interpretation involves four basic and key check points. These are credibility, dependability, conformability, and transferability (Lincoln YS, Guba EG 1985:293). Therefore, these four points were used as criterions assure trustworthiness of the qualitative study. These are described as follows.

##### **3.8.1.1. Credibility**

A credible study report may come if a researcher measured exactly and accurately what was planned to be measured. The possibility of making errors may happen secondary to misunderstanding of the data, omission of the data, and other factors. To assure the credibility of the study the following strategies were considered. The precautions were made based on the eight strategies proposed by Creswell (Creswell JW 2007).

First collection of the data collection was continued up until the data saturation occurs. Along with the researchers' prolonged engagement in the field, a persistent observation of the data was done. Third, triangulation of the data with information obtained from different methods was considered. In this study the data from the KII and FGD were used to triangulate information collected by various questions and from different sources. The audio tapped data and the field notes were different materials used to document the findings to assure referential adequacy. The sixth approach used to assure credibility was peer debriefing. The first draft report was given to a peer with equal status to the PI but not part of the research team. The pear was asked if the report makes séance or not.

Negative case analysis and member checks were the other points used to assure credibility (Creswell JW 2007). Through the negative case analysis information that are contrary to or the hypothesis of the study were searched. The discrepant information found

was then presented. The transcript, the first draft report was sent to the members or participants to crosscheck the reported research and scripts are same with what they said. At this point the participants had the chance to correct errors and give additional information.

The last strategy based on review by external auditor (Croswell JW 2007). The contribution of the reviewers working for the peer reviewed scientific journals along with examiners of this theses are the particular external auditors from which these study benefited.

### **3.8.1.2. Dependability**

A dependable research finding, if repeated on same study participants and in a similar context, can give same or similar results. Dependability denotes the extent to which the data or finding obtained from a research, if repeated, is consistent across the time and conditions (Polit & Beck 2012:585). Reporting the step by step processes of the detailed methodologies used to conduct a study can help others repeat the same research and obtain similar finding. The appropriateness of the methodologies used to conduct a study is basic to the assurance of its dependability (Brink 2006:118-119; Polit & Beck 2012:585). In this paper therefore the details of the methodologies used to conduct the study are clearly described and checked by experienced auditors.

### **3.8.1.3. Conformability**

Conformability is one way to assure the truthfulness of the research by means of crosschecking the interpretation and conclusion of the study with the original data. The researcher's bias may affect the finding of the study negatively. In order to confirm the compatibility of the interpretation or conclusion of the research with the original data, a conformability audit trial is needed (Lincoln & Guba 1985:300). By audit trial, the audio and field note transcripts are used to compare and contrast with the final research report made. For this study, an audit trial was made by two experienced qualitative researchers to check for conformability of the study finding.

#### **3.8.1.4. Transferability**

Transferability in qualitative research implies the applicability of the research finding in another's similar setup. Transferability of the research finding can be enhanced by collection of detailed or 'thick' description of the data and reporting in more precise but sufficient details. The description should not be limited to the findings, but the details of the methodology, design, context, objectives and others (O'Leary 2005:62-63, Foster 2004:230). In this study, the data collection was stopped at the level of data saturation. In addition a step by step methodological detail and the research findings are presented.

### **3.9. METHODS FOR THE POLICY ANALYSIS**

#### **3.9.1. Why Policy Analysis?**

Policies are authoritative statements for action (Sandra Regan 2014). The type direction and contents of the countries health care services are the results of the existing policies. The framework used to guide this study acknowledges policy as one of the factor influencing the EBP implementation process. A policy document analysis is the other approach of this study applied to get answer to the research question...*'Is there any documented policy guiding the implementation of PCC in Ethiopia?' Analysis of the available policy documents is, therefore, the empirical evidence base approach to answer to this research question.*

Policy analysis is conducted with the purpose of understanding what the policy document contained, how the policy operates and what the policy resulted. Close and systematic examination of the policy document is the only means to identify contents of the document and reach to conclusion (Sandra Regan, 2014). The policy document analysis in the current research is not assessing the processes and the outcomes of the specific policy. Rather it was focused on examining whether the Ethiopian Government health and health related policy documents contained policy related to PCC.

### **3.9.2. Accessing Policy Document**

The policy documents analyzed in this study were documents identified through direct visit to all the FMOH director offices. Most of the documents could be found electronically both from the websites of FMOH, Regional Health Bureaus (RHBs), and other government sector offices. The search for the policy documents was not limited to on the direct visit and searching websites, but of telephonic request of other national, regional, zonal, and Woreda level directorates and offices. To get health care providers curriculum Universities and colleges were contacted directly and also accessed telephonically. The key informants were also asked if they could provide relevant policy documents.

Policy documents such as, The Constitution, National Policies, strategic plans, white Papers, guidelines, protocols, training materials for HCPs, Monitoring and Evaluation Materials, Curriculums of the HCP's in Ethiopia were among the documents included in the study. The identified policy documents were of various types. The documents included in the review were all up-to date and currently functional documents. Please see all the types of documents displayed in chapter five.

### **3.9.3. Inclusion criterion to the policy documents**

**The inclusion criterion to select the document for the analysis were**

- Policy documents produced by the Government of Ethiopia
- Policy documents produced as of 1993
- All Health Policy documents
- Policy documents that can influence the health care delivery

### **3.9.4. Analysis of the Policy documents**

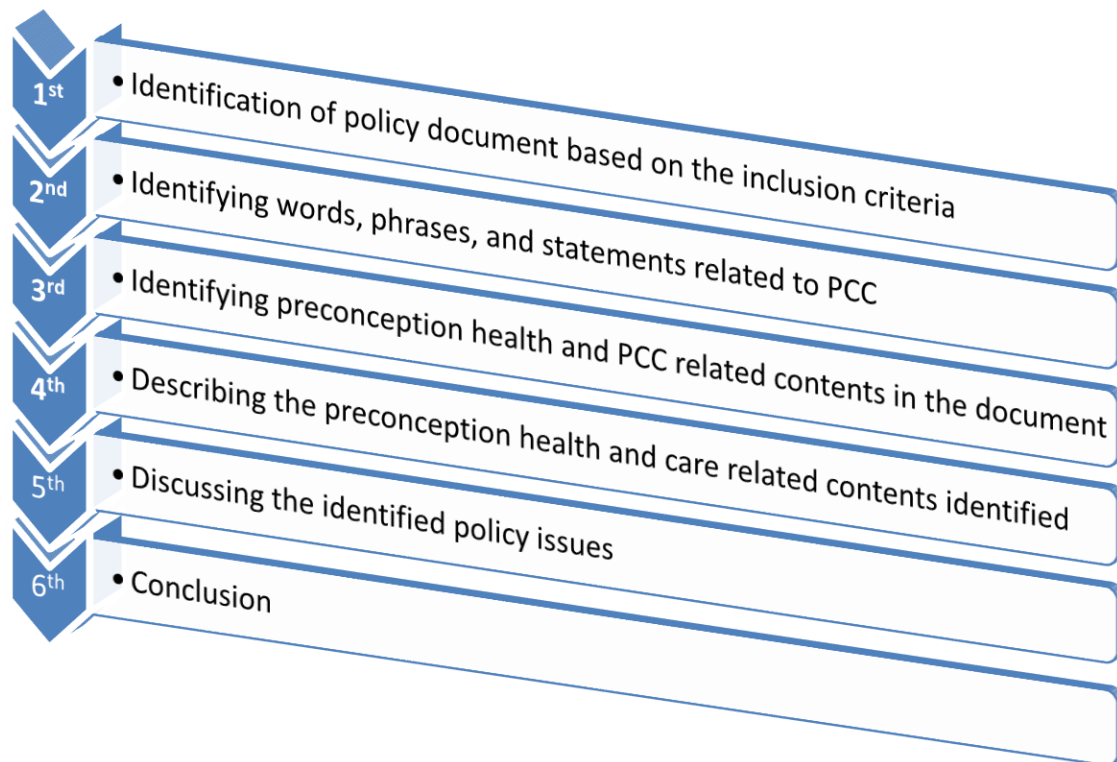
The analysis technique used in this study was a content analysis technique. All the documents were all read by the PI to for the availability of terms, phrases or statements related to preconception care and health. Page by page and line by line reading was the most dominant method applied to the analysis. In addition to this, the soft copies of the policy documents were all checked with the Microsoft word searching engine. To do so key

terms and phrases related to the preconception care were used. These includes, “Preconception care/pre-conception care”, Pre-pregnancy/Prepregnancy’, “Interconception care/inter-pregnancy care”, “Pre-pregnancy” health and “preconception health”. But we didn’t depend on this only. Since the policy document may explicitly or implicitly mention the subject matter, we preferred to read the document directly.

In addition, PCC related interventions like “Family Planning”, “Nutrition”, “Substance use or Abuse”, “Chronic Noncommunicable diseases”, “Tobacco” “Cigarette” “Alcohol”, “physical exercise”, “Micronutrient supplementation”, “Post natal care”, “health education” and others were all applied to see the documents content seriously.

#### **3.9.4.1. Steps of the Analysis**

The document analysis was conducted with a step by step process. The analysis involved a total of six steps (fig-6). The discussion on the identified policy issues was conducted In relation to the objectives’ of the current study using the determinants of PCC innovation process as a framework. The implication of the finding to current PCC service delivery and also future PCC integration processes are critically discusses



**Figure-6: Stapes followed to analyze the policy documents**

### **3.10. ETHICAL CONSIDERATIONS**

#### **3.10.1. Ethical Approval:**

This study employs a step by step approach to make the research ethically and legally sound or acceptable. At the theses proposal development stage various issues related to individual participants of the studies, the organizations involved in the study, and Issues related to the scientific integrity of the research were considered. The proposal document was first approved by the Institutional Review Board of UNISA at South Africa. After getting the approval from UNISA, the project was again submitted to the Hawassa University Institutional Review Board. Thus, the actual study was commenced after getting Ethical approval in Ethiopia too (Annex V and VI). The Ethical issues considered in the study are discussed as follows.

### **3.10.2. Ethical consideration for Individuals participated in the study**

These theses involved all individuals participant in the survey, FGD, KII, and all the Delphi-panels. All the participants involved in the study were given a chance to make their decision after having had sufficient information about projects. Their participation in the study, therefore, was based on an informed consent. To facilitate these, the annexed information sheet informed consent forms were used. Only those who are willing and consented to participate in the study were included. The Information given includes information about what the project was, it's aim, potential harm to the participant, benefits of participating in the study, maintenance of confidentiality and anonymity, data handling plan (For example audio tapped file, field note, and survey tools), the participants right to partly or totally abstain from responding to questions, and the right to contact the PI of the study for potential future enquiry.

In another explanation, the conduct of the study was guided by pre-informing the participant about researchers' duty. The first was researcher's duty to do good or benevolent act to participant or maintenance of the principle of beneficence. The second is the duty to avoid harm or nonmalefficiency. The ethical principles considered were fidelity or promise keeping, confidentiality or anonymity, respect for person, autonomy, justice, and an informed consent. The study never included minors or person less than 18 years of age. Thus, there was no need to consider an assent and gaining an informed consent from the legal guardian or parents (Polit DF, Beck CT 2013:80-90, Bordens KS, Abbott B, 2013:200).

### **3.10.3. Ethical issues considered in relation to institution involved**

Along with the copy of the ethical approval certificates (Annex V& VI), an official support letter was written both from Hawassa University and AA UNISA branch office to all organizations participated in the study (Annex VII & VII). In return all organizations also approved the conduct of the study within their catchment and also in providing the necessary information requested.

### **3.10.4. Ethical Issues with regard to the scientific Integrity of the research**

In this study, assurance of the scientific integrity of the research was maintained by acknowledging all the sources of information with proper citation and referencing. The data



collected for research purpose are all kept confidentially in locked cabinet and with password protected software.

#### 3.10.5. **Domains specific ethical concerns**

This study didn't include vulnerable population who can potentially or actually affected by the official disclosure or public discussion of the findings of these studies. These are because of two reasons. In the first case, the topic of the study is not a sensitive topic. The other is, all the study participants knew that the study was conducted for public health good and their names will not be communicated. If incase needed it would not be disclosed without their consent.

### **3.4 SUMMARY**

The detailed methodologies used for the theses are described in this chapter. The research areas and periods, research design, sample size, sampling techniques, sampling procedures, instruments used, analysis, and Ethical considerations were all are discussed. This chapter also presented the methods used to conduct the policy document analysis. The methods used to assure the validity and reliability of the quantitative measurement tools was discussed. The technical considerations to maintain the trustworthiness of the qualitative studies were also mentioned. The findings, analysis, and discussion will be discussed in the in the next chapter.

## CHAPTER 4

### ANALYSIS AND DISCUSSION OF RESEARCH FINDING

#### Introduction:

This chapter is section of the report displaying the in-depth analysis and discussions of the findings made based on the objectives of the study. The findings presented in this section are all findings obtained from the phase one and two of studies. Phase one of the study is a quantitative study that assessed the HCP's PCC knowledge, attitude and practice. It also assessed key factors determining the non-implementation of PCC by HCPs. Knowledge Attitude and Practice (KAP) surveys are best studies to assess the status of the delivery of any health care services (USAID 2011). The focus of this study is mainly targeted in assessing the HCP's level of PCC implementation and their determinants. The second phase of the study is the Qualitative study that employed FGD and KII to abstract the HCP's, expert's, health care manager's, university professors and other individual's perception about the determinants of PCC implementation in the country. The findings from phase three of the study, i.e. the policy document analysis, are also used to support the discussion. Findings obtained in the first step are further explained by findings from the qualitative study.

The theoretical framework, FDIOP, was used to organize the findings and discussion of the study. Thus, the organization and flow of the discussion will follow the six domains of the frame work outlined in the following steps

- ✓ preconception care implementation('innovation') process
- ✓ characteristics of the PCC(innovation ) strategy
- ✓ characteristics of the adopting person (HCP)
- ✓ characteristics of the organization
- ✓ characteristics of the socio-political context
- ✓ characteristics of the innovation (PCC)

NB: For technical reason general findings such as the socio-demographic characteristics of the study participants will be presented first. However this will be discussed with in the domain of the framework where they are supposed to be included.

#### **4.1. CHARACTERISTICS OF THE STUDY PARTICIPANTS**

##### **4.1.1. Phase One: Quantitative study**

A total of six hundred thirty-four (634) healthcare providers have participated in this study. This makes the response rate 98.0%.

##### **4.1.1.1. *Socio-demographic Characteristic***

Nearly two-third (61.4%) of the study of the study participants were women. More than half (59.6 %) of the study participants were between the age group of 26-30 years. Nurses were care providers constituting 66.9% of the study populations. All the Health Extension Workers participated in this study were basically nurses working in the PHCU called Health Posts. The Public Health Officers are clinicians working in the health centres (Table-3).

Table- 3: Socio-demographic characteristics of health care Providers working in public health Institutions of Hawassa (n=634), 2017, South Ethiopia.

Socio-demographic Characteristics	Total	
	Frequency (n)	Percent. (%)
<b>Sex</b>		
Female	389	61.4
Male	245	38.6
<b>Age</b>		
20-25 Years	178	28.1
26-30 Years	378	59.6
31-35 Years	55	8.7
> or = 36	23	3.6
<b>Marital status</b>		
Single	322	50.8
Married	300	47.3
Divorced	10	1.6
Widowed	2	.3
<b>Profession</b>		
Nurse	424	66.9
Health Extension Worker	62	9.8
Midwifery	57	9.0
Medical Doctor	51	8.0
Public Health Officer	40	6.3
<b>Education</b>		
Diploma	408	64.4
B.Sc.	187	29.5
M.Sc.	5	.8
GP/MD	28	4.4
Speciality/ MD	6	.9
<b>Year of experience</b>		
< 5 Years	381	60.1
> or = 5 years	253	39.9
<b>Monthly salary in birr</b>		
< 4000 birr	312	49.2
4000.0 - 4791.3 birr	179	28.2
> 4791.3 birr	143	22.6
<b>Religion</b>		
Protestant	396	62.5
Orthodox	185	29.2
Muslim	32	5.0
Catholic	15	2.4
Other	6	0.9

## **4.1.2. Phase two: The qualitative study**

### **4.1.2.1. Introduction to Qualitative study**

There were a total of 70 participants involved in the study. Out of this 55 were participants of the FGD and 13 were participants of the IDI. The participant of the study constituted HCPs from various health professional fields, lecturers, experts, researchers, and decision makers working at the various levels of the healthcare system of Ethiopia. Only three professionals asked to participate in the study couldn't participate with time shortage as a reason.

The discussions were all made with a familiar place to all the participants. Both the KII and the FGD were conducted by using semi-structured discussion and an interview guide. The central question to this study was 'Why HCPs are not implementing PCC?' The responses, are therefore, presented within the domain of the FDOIP framework along with findings from the quantitative study.

## **4.1. The PCC IMPLEMENTATION ('INNOVATION') PROCESS IN ETHIOPIA**

The Innovation process denotes the existence of intentional and planned effort to deliver Preconception care in Ethiopia. This '*innovation processes*' is characterized by, first, the presence of '*dissemination*' effort by concerned parties that make both the HCP and public aware of the presence of PCC. The second is the 'adoption' of the innovation by the potential adopters or the HCPs. Then, the 'implementation' stage followed. This is a stage characterized by the actual execution of PCC by the HCP. The continuous provision of PCC service to every individual desiring the care without interruption is the desired and the last level of the innovation process called 'maintenance' (Fleuren M et al 2004, Fleuren M et al 2014). The following findings and discussions in this section, therefore, show the status of the overall PCC implementation process.

#### **4.1.1. Assessment of the PCC ‘dissemination’ status**

##### ***4.1.1.1. prior preconception care training experience***

**Finding from the Quantitative study:** The HCP’s pre-service and or in-service PCC training experience was assessed. The HCP’s were given the chance to indicate if they took training on components of PCC training. The nine components given as an option were components identified by the PI’s literature review. These includes training on topics such as reproductive life plan, the importance of public awareness on preconception health and care, preconception risk assessment, preconception education and counselling, management of preconception risk factors, interconception care, PCC for patient with chronic disease, and finally prevention to mother o child transmission of HIV infection (PMTCT) and or HIV Counselling and testing and or IMAI/ART (Annex II).

About 30 % of HCP’s had an in-service training experience with interconception care consideration to prevent APO. Very few (10%) of the HCPs had a pre-service training experience on preconception considerations to patient with chronic diseases. The other PCC training components such as, how to conduct preconception risk assessment, how to provide preconception educational and counselling, importance of public awareness about PCC, how to manage identified preconception risk factors were inexistent. Nevertheless, the HCPs had an in-service and pre-service training experience with a topic which to some extent contains a PCC consideration. These are the HCP’s training experience on PMTCT and/ or PIHCT and/or VCT and/or IMAI/ART (34.1%).

##### ***4.1.1.2. Degree of awareness regarding PCC recommendations***

**Finding from the Qualitative study:** When the study participants asked about whether did they ever heard or read about PCC recommendations, the majority responded they had limited information. Some of them reveal they never knew it. One of the participants expressed

*“...this is the first time I hearted about the preconception care...”*

The other university lecturer also replied

*“..I never knew these for a long time. I heard the issue in the past two years when my friends started to conduct a study on PCC...”*

Some of the general practitioners who participated in the previously conducted PCC KAP survey or phase one of the study indicated that their involvement in the study gave them a chance to become aware of the existence of PCC (Kassa AB, Human Sarie H. 20017b). These GPs, expressed their experience that they recognized the presence of the term and presence of such a service during the time they participated in the survey. Almost all of the university teachers expressed similar point that they never thought these from college or universities. Moreover, they also stated that they are not teaching PCC to their students too.

Practitioners working in the public health institutions were also mentioned that they totally neither thought PCC in their undergraduate courses nor get an in-service training on PCC. Nevertheless, very few practitioners responded they knew little about PCC in terms of prevention of NTD. One participant expressed his past college experience this way.

*“... Whenever our teachers get a woman who gave birth to a baby with congenital anomaly, they will tell her that she should get Folic acid supplementation before three months of the next pregnancy...”*

Similarly, another GP expressed his experience regarding counselling given to women with C/S. He stated

*“...Whenever clinicians find a woman with C/S, they usually tell her that she should give birth after two years.”*

Two Nursing tutors also expressed their experience in that they sometimes teach their students whenever they get cases with stillbirth and congenital anomalies.

## **Discussion**

The findings of the qualitative study can explain more about the reasons for poor pre-service training experience noted in the quantitative study. Almost all of the participants of the study had never got the chance to learn about the core components of PCC topics. Since preconception care is a cross-cutting issue, they might have attended this as a

subtopic of various courses given with the different instructional objectives. This finding is consistent with the Japanese family physician's report that they took little training on PCC at University (Kitamura K et.al. 2005). Community midwives participated in one study reported that they lack sufficient knowledge to provide PCC and need more training (van Heesch, P. N. de Weerd, S. Kotey, S. Steegers, E. A. 2006). Consistent with this finding, the current policy document analysis made to determine the inclusion of PCC in Ethiopian HCP's pre-service curriculum identified the absence of PCC as a topic (Kassa AK, Human S. 2017).

These findings and the other similar reports may be linked to the case that PCC is a newly emerging service in the healthcare field (WHO, 2013a). Based on the Rogers et al, the concept innovation includes '*...an idea, practice, object by an individual or other unit of adoption...*' (Rogers EM, Singhal A, Quinal MM 2009). The findings obtained from the KAP survey, qualitative study, and the policy document review asserted the fact that PCC is not yet formally and well introduced to Ethiopia. This makes the term innovation appropriate to interchangeably use with the PCC.

The preconception implementation process based on the FDOIP model includes four steps. The first step is targeted strategy which aims the '*dissemination*' of the innovation, in the current case PCC. The dissemination process targets the adopters of the innovation. The disseminators of the innovation are all parties with varying levels of expertise and authorities (Fleuren M et al 2004). The main disseminator in the current case is the FMOH in collaboration with other sectors such as the FMOE, the Federal Minister Communication affairs, other sector GO and NGOs and individuals. Disseminators are responsible to make the public aware of the PCC, give PCC training to the HCP, arrange conducive environment to trainees, arrange conducive setup and facilities to enhance implementation of PCC, develop PCC guideline and policies, and also conduct monitoring and evaluation.

The finding of the current studies, however, showed that lack of active PCC dissemination process. This was identified in terms of HCP's poor prior training experience, poor teachers PCC training experience and also non-inclusion of PCC in the HCP's training curriculum. As pointed out by the study participants', the poor public awareness on preconception



health and the absence of PCC education by the mass media may be taken as the sufficient reason to conclude that there are a poor PCC implementation processes due to inactive diffusion of the Innovation, i.e. the PCC, in the Ethiopia health system.

#### **4.1.2. Assessment of the PCC ‘Adoption’**

**Finding from the Quantitative study:** When HCPs participated in the survey asked, ‘Are you willing to integrate PCC in your current practice?’, the majority (74.3%) replied ‘yes’ the other 14.5% abstain to deciding and the remaining 11.2% answered ‘no’. Nearly all (84.5%) of the participants expressed their interest to get training on PCC. The assessment of HCP’s attitude towards PCC also showed the majority (59.0%) had positive attitude towards PCC.

**Finding from Qualitative study:** All the study participants included in the FGD and KII agreed PCC should be implemented in Ethiopia. Some of the university lecturers and professors replied they have already started their own effort to include PCC in students clinical practise session.

One general practitioner noted that

“...I agree with the others point that the PCC policy and setups are mandatory, we also need PCC guidelines but the main thing is awareness creation. If once the community start seeking the service, we automatically start practicing PCC... ’

Almost all of the study participants gave their recommendations to the implementation of PCC in Ethiopia

#### **Discussion:**

This finding shows the will and readiness of HCPs to start practicing PCC or ‘Adaption’ of PCC. The interest to integrate the PCC in their daily practice, their interest to get more training on PCC, the positive attitude noted among the majority, and the presence of some HCPs who started practicing PCC is evidence that HCPs are ready to adopt PCC. Despite, this fertile ground, the absence of the active PCC diffusion effort by the FMOH & FMOE has affected the adoption rate of PCC by the HCPs.

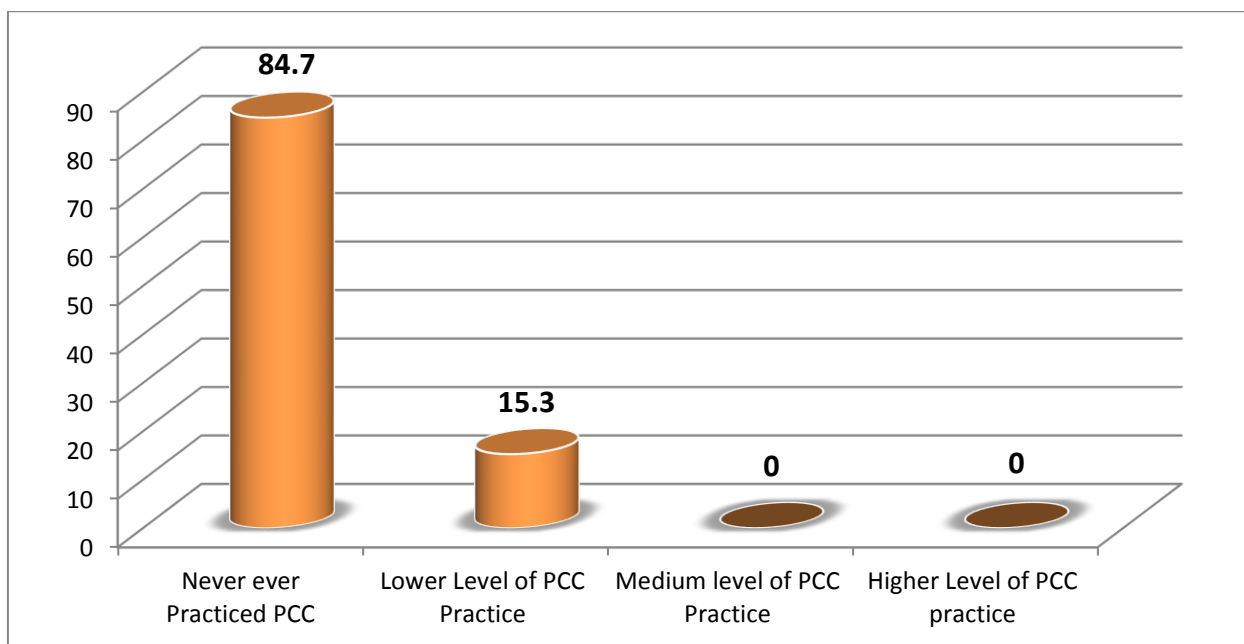
In contrast to the majority of HCPs, there were fewer HCPs who were sceptical, replied 'no', shows negative attitude towards PCC. These potential responses may negatively affect the adoption rate of PCC among HCPs sharing similar predisposition. The tendency to refrain from adopting PCC among this group of HCPs may be explained with the inadequate knowledge about PCC, lack of past training experience, their perceived expectation that PCC should be given by selected HCPs, competing demands, and lack of clear policy and guidelines. Efforts targeting to address these group of HCPs may help to accelerate the adoption rate. The good thing, nevertheless, about these findings is that the vast majority are already willing to adopt PCC.

#### **4.1.3. Assessment of PCC 'Implementation' status**

The third step in the PCC implementation process is 'Implementation'. This stage is characterized by the actual execution of PCC by the HCP's. Implementation is said to happen when a HCP or the health care organization 'puts an innovation to use' or start providing or practicing the PCC (Fleuren M et al 2004). The term 'Implementation' in this study therefore imply the levels of HCPs' PCC practice. The level of HCPs' PCC practice in this study is mainly assessed based on the quantitative study.

##### **4.1.3.1. Level of HCP's PCC Practice**

The status of the level of the health professional's PCC practice was assessed. The findings showed that, out of the total study participants, 84.7% (537) never provided a single component of PCC. Very few, ninety-seven (15.3%), of practitioners, were found practicing PCC. A focused analysis, on those HCP's who claimed to practice PCC, also demonstrated the levels to which providers are practicing PCC. To assess the level of providers PCC practice, we categorized the level of practice into three categories. Among those practicing PCC, all of them (n=97) implemented < 50% of the items measuring PCC practice which is a low level of PCC practice. Thus, there is no HCP categorized neither with a higher nor medium level of PCC practice (Figure-7).



**Figure-7: Health professional Practicing PCC in public health institutions of Hawassa (n=634). 2017, South Ethiopia**

#### 4.2. SELECTED PCC ITEMS NOT PRACTICED BY THE HCPS

As shown in the table- 4, some of the PCC services were not being practiced. For instance, HCP's don't provide folic acid supplementation for non-pregnant women and the preconception counselling issue regarding environmental hazard were not discussed. The genetic screening test, HbA1c tests are not totally practiced

**Table-4: Selected PCC items not practiced by the health care providers working in public health institutions of Hawassa. 2017, Hawassa, Southern Ethiopia**

Status of HCP's Practice	Frequency	Percent
• Counselling on preconception Folic Acid supplementation	0	0%
• Counselling about the importance of environmental hazard and toxins	0	0%
• Importance of partner involvement in PCC	0	0%
• Assessment of patient's exposure with environmental hazard & toxins	0	0%
• Assessment of History of dental care or checkups	0	0%
• Preconception folic acid supplementation to RH aged clients	0	0%
• Cigarette, alcohol and other substance use cessation	0	0%
• Genetic screening tests	0	0%
• Immunizations other than TT Vaccines	0	0%
• Haemoglobin A1c screening for DM patients	0	0%

## Discussion

The finding of this study indicates that almost all health care providers were not totally implementing PCC (85%). The remaining HCP's claimed to practice (15%) were caring out it 'sometimes' and not totally. As indicated in the table-4. There are components totally not given by the HCP's. All the HCPs don't totally counsel on preconception Folic acid supplementation, never conduct genetic screening and tests, never provide cigarette and or alcohol and or substance use cessation services, don't counsel about avoidance of environmental hazards and contaminants. These findings compared to reports from other studies are evidence showing almost the absence of the service in the studied area.

For instance, a study from the cross-sectional study from Nevada reported that 43% of the HCPs are providing PCC (Van E 2012). The survey from the Ontario Canada report showed that except all 95.8% of the family physicians were providing the service. However, 20% of these claimed for conducting PCC rarely (Best Start Resource Centre, 2009). The cross-sectional study from Iran report indicated that HCPs practising PCC fairly and fairly all together range from 25%- 47.6% (Bayram et al 2013). As another study report from the Nederland denoted, 27 % of the general practitioners and 20% of the midwives were giving PCC within two months preceding the date the data was collected (Voorst SV, et al, 2016). The PCC practice reported from these and other countries included almost all components of the PCC with slight variations. Those PCC services components total not provided in the current study areas are all given in the other study reports (Van E. 2012, Best Start Resource Centre, 2009, Bayram et al, 2013, Heyes T et.al 2004).

Almost similar to the findings of the current study, the survey report from the El-mania Governorate of Egypt didn't report any "good PCC" provided by the HCPs. As to this report, 25% of the HCPs did never practice a component of PCC. In case of the current study, it was even much higher (84.7%). Three fourth (75%) of the El-mania HCPs were found at list practising PCC even though it was poor or at a substandard level. In the current study, in contrast to the Egyptian practitioners, a substandard or poor PCC practise was identified among the very few (15.3%) HCPs (Mosalem et al 2012).

A complete or good preconception care is a care addressing all the essential elements of PCC. These essential elements are categorized into three main and sequential steps. The first is preconception assessment and risk screening. The second is preconception counselling. Finally prevention and management of identified risk factors. A PCC which do not included all the essential elements of PCC is a substandard, inadequate, or poor PCC care. The care should also be given regularly to all of the eligible clients before conception (WHO 2013a, CDC 2006). The type of service identified in the current study is totally not a full packaged care. That means a care that contained all the essential elements of the care. Nevertheless, the existence of the practice in its weakened form may create a ground for further enhancement of the services. The very reason for the observed variation may be explained by the policy frameworks guiding the practice of PCC implementation in each country (WHO 2013a). Unlike the other countries, PCC is not yet supported and guided by a policy framework designed by the Ethiopian FMOH (Chapter five).

#### **4.1.4. Assessment of PCC ‘Maintenance’ status**

**Finding from the quantitative study:** The finding from the quantitative research showed 84.7% of the HCPs never ever implemented PCC. The remaining 15.3% was also found with poor PCC implementation status. The study finding also identified ten components of PCC which never ever practiced by the HCPs (Table-4). This showed that they may provide some components of the PCC and miss all the other essential elements of PCC.

**Finding from the qualitative study:** The qualitative study findings also showed that the provision of PCC is incidental, inconsistent and is given mainly to select few individuals with established risk factors like women with previous History of congenital anomaly, with C/S, with positive HIV sero-status, and with Rh negative Mother who gave birth to an Rh positive baby. These are more of an interconception care consideration (CDC 2006). The existing PCC services such as STI screening, provider initiated HIV counselling and testing, family planning services, TT vaccinations of RH are not given guided by the objectives of PCC.

Preconception care aims at optimization of women and their couple’s health before conception (WHO 2013a). As per the qualitative study participants the existing components

of the PCC services never aligned with the objectives of PCC. One experienced clinician stated that the

*“...the focus of the current FP service is only spacing or contraception. Not optimization of women’s health before conception. The providers only tell a woman she can discontinue the contraception when pregnancy is wanted ....It should never continue this way...It should be corrected...”*

The participants of the qualitative study also indicated that the lack of knowledge deficit amongst the HCPs, lack of accountability, and absence of a formal and recognized PCC service as a barrier to implementation of PCC. They also proposed the need to opening a dedicated PCC clinic in all PHIs.

**Discussion:** The term ‘*maintenance*’ implies the degree to which an ‘innovation’ or the practice of PCC or implementation of PCC is continued over time, particularly after attempts to diffuse the innovation end or also known as stability (Fleuren M 2014, Fleuren M et al 2004). Maintenance of PCC service provision can be characterized by when HCPs start providing the service all the time they meet reproductive aged individuals. Presence of a dedicated clinic providing PCC with specially trained HCPs may be evidence to the presence of the service within the health care system. The findings of the study, nonetheless, doesn’t give any clue about the presence of HCPs who made PCC part of their day to day clinical practice or the presence of dedicated PCC clinic.

#### **Summary on Assessment of the PCC Implementation Process:**

The overall assessment of the status of PCC (‘innovation’) Implementation process showed poor implementation of PCC as a result of inexistent active diffusion of the innovation mainly by the FMOH, the FMOE, professional associations, and other concerned parties. The assessment of PCC adoption status by the HCP showed a very promising result. The vast majority of the HCPs showed their willingness to incorporate PCC in their daily practice. The assessment of the PCC ‘implementation’ reveal the absence of formal or officially recognized implementation of PCC. There is however few, or nearly negligible activity of PCC in the Ethiopia Health Care System. This may be executed under auspices of other program/activities, while it deserves special attention as a separate program/activity. Nevertheless, this is a substandard or poor implementation of PCC by

very few HCPs. More over the findings of the study ascertained the absence of PCC that made available to the community and also absence of HCPs making PCC part of their day to day clinical practice. Most importantly, it seems that the service has never been considered a priority in Ethiopian Health service delivery. Thus, the process of PCC implementation never reached to the stage of maintenance of the implementation.

Before proceeding to the next question, the participants were given brief information about the existing recommendations of PCC. Asking HCPs about their awareness of existing PCC recommendations before the explanation help to get their actual awareness on PCC recommendations. In addition, the brief explanation helps to foster a mutual understanding between the researcher and the study participants. Similar techniques were used in one qualitative study conducted in the Netherlands (Sijpkens MK, Steegers EAP Rosman AN 2016).

#### **4.2. DETERMINANTS TO IMPLEMENTATION OF PRECONCEPTION CARE**

**Introduction:** The previous finding showed that most of the healthcare providers are not totally implementing PCC (84.7%). The remaining others, the minority (15.3%) were found practicing a substandard PCC or poor PCC practice. In this section, factors associated with HCPs PCC practice are assessed based on the identification of key factors predisposing HCPs to '*not implementing*' or '*not practicing*' PCC. By using the bivariate and multivariate logistic regression model four key factors were identified. The extent to which these factors affect the likely hood of not implementing PCC is presented with their adjusted odds ratio (AOR) at 95% confidence level (Table-5).

The qualitative part gives further explanation on the key factors identified by the quantitative approaches and also adds other factors which other ways may not be identified by quantitative approach. The question 'Why HCPs are not implementing PCC?' was the main guiding question. By using this approach the factors were identified. The findings and discussion finding of this discussion is presented based on the domains the FDOIP frameworks.

#### 4.2.4. Characteristics of the Adopting Person (HCP)

In this study, all the key factors increasing the likelihood to not implementing PCC were factors related to the characteristics of the HCPs. These were poor HCP's knowledge on PCC, HCP's poor practice on screening client's intention to pregnancy (RPL) and the presence of competing demands.

##### 4.2.4.1. *Key factors determining providers PCC implementation*

**Finding from the quantitative study:** In this study, we identified factors determining the non-implementation of PCC by the HCPs. In order to get the key determinants, all factors considered in the reviewed literature were first taken to the bivariate logistic regression model. All factors with their P-value <0.25 were considered to be taken to the next multivariate model. Factors found to be significantly associated with the dependent variable, '*HCP's PCC practice*', were determined by the backward conditional logistic regression model. This method was chosen because of shorter computation time it takes while running the models and can give chance for variable after running (Homer DW, Lemeshow S 2000).

The factors identified in this study were four Key factors that increased the likelihood of the non-implementation of PCC by the HCPs. These were 'Screening for RPL', 'HCP's Knowledge on PCC', 'HCP's profession' and their opinions on '*who should provide PCC?*' The remaining factors that were taken to the next model but not statistically significant in the multiple logistic regression models were, marital status, sex of the professional, income level, educational level, type of the health facility where the HCP working, presence of library in the facility, access to internet service, and attitude of the HCP towards PCC (Table-3).

**Finding from the Qualitative Study:** The qualitative study also identified similar factors contributing to not implementing PCC. The other factors found determining the non-implementing PCC in Ethiopia, as perceived by HCP's participated in the study, were factors related to the HCPs. Poor HCP's knowledge on PCC, HCP's poor practice on screening client's intention to pregnancy (RPL) and the competing demands were the factors identified by the participants of the study. The competing demand was the only



factor identified in the qualitative part. The HCP's professional background, a key factor identified by the quantitative study, was not a concern of the qualitative study participant.

**Table-5: Bivariate & multivariate logistic regression analysis depicting predictors of providers PCC practice. 2017, Hawassa, South Ethiopia**

	HCP's PCC practice status		COR (95.0%, C.I.)	AOR (95.0%, C.I.)
	Poor PCC Practice	No PCC Practice		
<b>HCP's Knowledge on PCC</b>				
Poor PCC Knowledge	19	251	3.1(2.1-6.1)***	4.4(2.5-7.6)***
Good PCC knowledge	78	286	1 <sup>§</sup>	1
<b>HCP screens client's RPL</b>				
Not screening	10	221	6.1(3.1-12.0)***	7.2(3.6-14.5)***
Regularly screening	87	316	1	1
<b>Who should give PCC?</b>				
Selected HCP's	34	271	1.9(1.2 -3.0)*	2.0(1.3-3.3)*
All HCP's	63	266	1	1
<b>Health Care Providers</b>				
PHOs & HEW's	18	84	1.8 (0.8-3.9)	1.6 (0.6 - 3.5)
Nurses and Midwives	65	416	2.7(1.4 - 4.7)	2.4 (1.3 - 4.6)*
Medical Doctors	14	37	1	1

1<sup>§</sup>= Reference category, \*= PV<0.05, \*\*=PV<0.001, \*\*\*= PV<0.0001, COR= Cruds Odds Ratio  
AOR=Adjusted Odds Ratio, CI=confidence interval

The key factors affecting the HCPs to not implementing PCC are discussed separately. The key factors, according to their rank order, presented in this section are discussed as follows

### **1<sup>st</sup> HCP's poor practice on screening client's intention to pregnancy (RPL)**

#### ***Finding From quantitative Study:***

The multivariate logistic regression analysis revealed the likely hood of not implementing PCC among those professionals who didn't regularly screen women's intention to pregnancy or their reproductive life plan (RPL) was by seven-fold higher than those HCP's regularly practicing (AOR=7.2 95% C.I. 3.6-14.5).

### ***Finding from qualitative study:***

The participants of the study indicate that there is no trend in asking clients' intention to pregnancy. Most of them stated that they don't usually ask such a screening question. Both the clinicians and the pharmacist stated this case as a reason for missing the opportunity to care for their clients. One pharmacist stated that

*"...it is common to identify patients taking a drug with teratogenic effect... nobody knew that they are pregnant ...but they are already...no body stopped them... they continue taking the drug up until we identify that they are pregnant... the clients also don't know the effect of the drug...If we ask and knew we could stop it but nobody stop it..."*

The other pharmacist also stated

*"...what we practice in actual case, if we are dispensing a drug with teratogenic effect, is asking women if they are lactating or pregnant. Not totally their intention to pregnancy or RPL. As a student we were never talked to screen RPL, and as a teacher we are not practicing this and teaching to our students too..."*

As a result they all recommend the importance of asking a screening question to identify the plan of the women or couples and also increasing client's awareness with all the possible meanness. They also emphasize the need to integrating in all HCP's courses curriculum and the need of in-service training to all who are already on the practice.

### ***Discussion***

The most important factor identified in this study was the health care professionals RPL screening practice. Those HCPs not regularly screening the RPL, the reproductive life plan of the client, had a likelihood of not practising or not implementing PCC by seven-fold higher than those who regularly screen RPL(AOR=7.2, 95% C.I. 3.6-14.5). Regularly conducting RPL is highly recommended and it is the get way of provider-initiated PCC. RPL may be screened for various medical reasons other than PCC (Coffey K, Shorten A.2014). Despite the available recommendation and its observed effect on the current study, more than one-third (36.4%) never practised. Even among those who claimed to practice all were not practising it often 'times' or 'always'. Enhancement of RPL with

adequate PCC training and institutional reinforcement may help to address all the eligible's to PCC. A single question to screen RPL may help as entry point to PCC and optimize the fetomaternal health (Callegari LS, Aiken AR, Dehlendorf C, Cason P, Borrero S 2017, CDC 2010, Liu F, Parmerter J, Straughn M 2016).

## **2<sup>nd</sup> Poor PCC Knowledge**

**Finding from the Quantitative Study:** The second most important key predictor shown in this study is knowledge. In accord with this fact, those who scored poor PCC knowledge had the probability of not totally providing PCC by more than four times than those HCPs practicing PCC at least to some extent (AOR= 4.4, 95% C.I. 2.5-7.6). Inadequate knowledge is one of the most frequently reported determinants affecting providers PCC practice (Guess K, Malek L, Anderson A, Makrides M, Zhou S J. 2017, Hauser KW, Lilly CM, Frias JL 2004 ). Knowledge as a factor is not only linked to PCC practice. Various implementation researchers conducted on the healthcare professional reported that it is one of the key factor determining HCP's clinical practice (Fleuren M et al 2014, Fleuren M et.al 2004). Knowledge as a determinant to the implementation process of innovation in the healthcare system is well indicated by the theoretical framework used to guide the current study (Fleuren M et.al 2004). The knowledge level of the HCPs, factors affecting their knowledge is discussed below

### **➤ *The level of the HCP's knowledge on PCC***

**Finding from the Quantitative Study:** Study participant's score out of the 18 items measured their knowledge on PCC ranges from 0-16(M=9.44, SD=2.4). Almost half (43%) of the HCP had lower knowledge about Preconception care. Only a few (31%) of HCPs were with the relatively desired level of PCC (figure-8). For the analytical purpose, we further dichotomized the finding into two categories. Thus, HCPs who scored the higher and medium level of knowledge all together are characterized as providers with 'good PCC knowledge' while those with the low scorers (43%) labelled as HCPs with 'poor PCC knowledge'. The latter's are titled so because they all scored below the 50% of the knowledge assessment items.

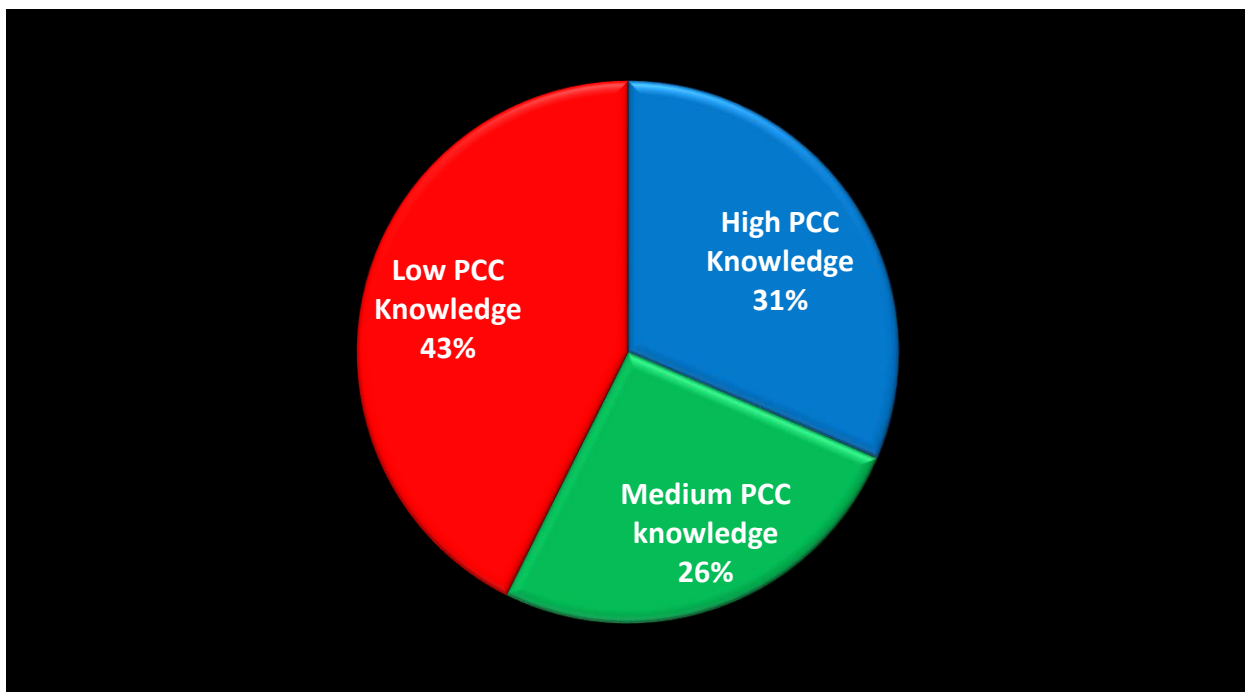


Figure-8: The level of health care provider's knowledge on preconception care (PCC). 2017, Hawassa, Southern Ethiopia (n=634).

**Finding from the Qualitative Study:** When the study participants asked about whether they ever heard or read about PCC recommendations, the majority responded they had limited information. Some of them reveal they never knew it. One of the participants expressed *"...this is the first time I heard about the preconception care..."* The other university lecturer also replied *"...I never knew these for a long time. I heard the issue in the past two years when my friends started to conduct a study on PCC..."* Most of the general practitioners (GPs) shared this idea. Almost all the university teachers expressed the similar point that they never thought these from college and universities and not teaching it to their students too.

Practitioners working in the public health institutions were also mentioned that they totally never thought PCC in their undergraduate courses and never get an in-service training on PCC. Nevertheless, very few practitioners responded they knew little about PCC in terms of prevention of NTD. One participant expressed his past college experience this way.

*"... Whenever our teachers get women who gave birth to a baby with a congenital anomaly, they will tell her that she should get Folic acid supplementation before three months of the next pregnancy..."*

Similarly, another GP expressed his experience regarding counselling given to women with C/S. He stated

*“...Whenever clinicians find a woman with C/S, they usually tell her that she should give birth after two years.”*

Two teachers also expressed their experience in that they sometimes teach their students whenever they get cases with stillbirth and congenital anomalies.

Almost all participants agreed that they had limited or poor knowledge of PCC. Some of the discussants also mentioned that they are not totally aware of the existence of PCC. They also testify that it is not well-known subject by most of the practitioners in the field. However, two university lecturers mentioned that they get the knowledge while reading research findings and give the chance to the students to learn more about the clients who gave birth to a baby with congenital anomalies and stillbirth. Nevertheless, almost all the participants of the study remarked the fact that they never thought as a student and never get in-service training on PCC. One participant, as an example, stated that

*“...all the gynaecologists teaching us started the obstetric course from ANC...we are also assigned directly to ANC during the practical attachment session ...So we don't have information regarding PCC...”*

### **Discussion:**

Knowledge is one of the most important determinants of implementation of a health care. Knowledge deficit is one of the primary factors for non-implementation of evidence-based practices. Health care providers don't usually practice what they don't know (mc Cluskey A 2003). The current study demonstrated poor preconception care among the greater proportion (43%) of HCPs working in HPIs of Hawassa. This finding is consistent with some published articles that assessed knowledge among HCPs. A survey report from El-Minia Governorate of Egypt reported higher knowledge among 22% of the HCPs. This is to some extent, compared to 31% of the current study, lesser than the current study but don't have a big gap (Mosalem FA, 2012).

Another study conducted at Iran among HCPs relatively reported a moderate level of PCC knowledge among 30 - 67% of HCPs. The only members of the HCPs identified with poor PCC knowledge were 11.7% of the healthcare social workers. The remaining significant proportion of these HCPs had good knowledge (Bayram R, 2013). Unlike Ethiopia, the implementation of PCC in Iran existed years before the reported research conducted. This gives a chance to the Iranian HCP's to be well informed about the subject matter (Khazardoost S, Borna S, Hantooshzadeh S, 2003, Sardasht FG, Shourab NJ, Jafarnejad F, Esmaily H 2014). The study conducted in Ontario Canada reported poor preconception care knowledge as one of the physician's reported factors as a barrier to providing PCC (Best Start Resource Centre, 2009).

The level of awareness might vary amongst the study participants. Nevertheless, these participants were aware of the values of folic acid recommendations, TT vaccination, and spacing between pregnancies, the value of PMTCT, family planning, nutrition, and stabilization of chronic disease before pregnancies. This finding is consistent with the level of HCP's PCC knowledge determined, by the quantitative study, in three distinct levels ranging from very low to high. The variation noted in the level of awareness may be due to the absence of the inclusion of PCC training in the country HCP's training and also the absence of in-service PCC training

#### ➤ ***Predictors of good PCC knowledge***

The analysis further depicted factors associated with the healthcare provider's preconception care knowledge. Factors that we considered for multivariate analysis were all first checked with bivariate analysis. Only those factors with their p-value less than 0.25 were taken to the next model. However, the final multiple logistic regression asserted only five factors were associated with poor HCP's good PCC knowledge. Among the factors demonstrated statistically significant association were type of the PHI where the professional is working, monthly income of the HCP's, health care providers' use of smartphone for accessing and reading clinical information's, ever get and read a PCC guideline or protocol prepared by organization other than the Ethiopia FMOH, and Practicing PCC.

The detailed findings regarding factors associated with HCP's good level of knowledge on PCC is depicted in the table shown below (Table-6). As shown on the table, those HPs working in public Hospitals are by two-fold with a good knowledge of PCC than those working in health centres (AOR=1.8, 95% C.I. 1.3 - 2.6). The likely hood of having good PCC knowledge was greater by two-fold than among those HCP's getting a monthly salary of > 4,000.00 birr compared to those who are paid less (AOR=1.5, 95% C.I. 1.1-2.1). Care providers who were using a smartphone to access clinical resources were also by about two times (AOR=1.4, 95% C.I. 1.1-2.0) likely to had good PCC knowledge than HCPs who were not using. Those practitioners who read PCC guidelines or protocols prepared by other professional organization or countries other than Ethiopia had odds of scoring good level of PCC two times higher than those who didn't read any (AOR=1.9, 95% C.I. 1.4 - 2.7). The factor with the higher odds to score among the listed factors was actually practising PCC. Those care providers claimed to practice PCC had odds of scoring good level of PCC Knowledge than Others (AOR=3.4, 95% C.I. 2.0 -5.9).

Three factors that primarily showed statistically significant association at the bivariate analysis level didn't show statistically significant association in the final model. The first among this list was sex of HCPs. The others were educational level and presence of library on the specific PHIs where the HPs are working (Table-6)

**Table-6: Bivariate & multivariate logistic regression analysis depicting predictors of good PCC knowledge among health care providers. 2017, Hawassa, South Ethiopia**

Factors	HCP's Knowledge on PCC		COR (95.0% C.I.)	AOR (95.0% C.I.)
	Good	Poor		
<b>Sex</b>				
Male	156	89	1.5(1.1-2.1)*	
Female	208	181	1 <sup>§</sup>	1
<b>Educational Level</b>				
B.Sc. & Above	29	10	2.3(1.1- 4.7)*	1
Diploma	335	260	1	1
<b>Type of the PHI</b>				
Public Hospital	266	158	1.9(1.4-2.7)***	1.8(1.3 -2.6)**
Public Health centre	98	112	1	1
<b>Monthly income</b>				
≥ 4000.0birr	200	122	1.5(1.1-2.0)*	1.5 (1.1-2.1)*
< 4000.0birr	164	148		
<b>Use smart phone for sharing downloading &amp; reading clinical resources</b>				
Yes	227	139	1.6(1.2-2.2)*	1.4 (1.1-2.0)*
No	137	131	1	1
<b>Ever read PCC guideline or protocol</b>				
Yes	203	112	1.8(1.3-2.5)***	1.9 (1.4 - 2.7)***
No	161	158	1	1
<b>Practicing PCC</b>				
Yes	78	19	3.6(2.1-6.1)***	3.4 (2.0 -5.9)***
No	286	251		
<b>Presence of Library in the PHI</b>				
Yes	216	106	2.3(1.6-3.1)***	
No	148	164	1	1
<b>Profession</b>				
Medical doctor	35	16	3.7(1.7-8.1)	
Nurse	248	176	2.4(1.4-4.1)	
Midwifery	33	24	2.3(1.1-4.9)	
Health Officers	25	15	2.8(1.2-6.4)	
Health Extension worker	23	39	1	1

§ = Reference category, \* = PV<0.05, \*\*=PV<0.001, \*\*\*= PV<0.0001, COR= Cruds Odds Ratio  
AOR=Adjusted Odds Ratio, CI=confidence interval



## **Discussion:**

Identifying factors affecting the HCP's knowledge status on PCC is vital to measures taken to enhance their knowledge. The available few studies in the area didn't investigate factors determining the HCP's knowledge on PCC. Rather reported non-inclusion of PCC in their university courses, the absence of in-service training, the absence of guidelines on PCC were mentioned as factors affecting in relation to PCC (Kitamura K et al 2005, Best Start Resource Centre, 2009, WHO 2013a). Other study does also mention the proportional knowledge level variations amongst the various professional backgrounds of HCPs (Bayram R 2013). In the current study, however, professional background and educational level were not key predictors of their knowledge. This may be linked to the non-inclusion of PCC in the Ethiopian HCP's training curriculum. This is discussed in detail at chapter five. For instance, one study conducted to assess Ethiopian HCP's knowledge on TB infection control denoted Level of education, professional background, working in TB clinics as key indicators. (Gizaw GD, Alemu ZA, Kibret KT, 2015). Compared to PCC, the topic TB is addressed in all HCP's curriculum (Table-12).

The policy document analysis, reported in chapter five, reveals the absence of PCC guidelines in the country (Chapter 5). Nevertheless, those who accessed PCC guidelines prepared by other professional organizations had a good knowledge of PCC. Thus, exposure to PCC guidelines and using smartphone to access clinical recourses are most important predictors of good PCC knowledge among the HCP's. Using the traditional library or presence of a library at the health institutions didn't show any statistically significant association at the multivariate level. This may be linked to the absence of PCC guidelines in the facility or the underutilization of the library by HCP. The value of m-health in the facilitation of clinical innovations and betterment of clinical performance or decision-making is well documented. Currently, the value of using mobile phones and internet as a mechanism for knowledge sharing among the Ethiopian HCP's is well recognized (Asemahagn MA 2014, FMOH 2015) This finding can be taken as an opportunity to enhance the knowledge of HCP's working in a resource-limited area and working in a busy work schedule.

The monthly income and practical working areas were also among factors that affect the HCP's PCC knowledge. The analysis indicated the value of better salary and working in Hospitals to increasing HCP's knowledge on PCC. The professional's skill mix, the number of specialists and the types of clinical cases attended at public hospitals is quite different from and by far better than public health centres (FMOH 2015). This might negatively affect the knowledge and skill sharing chance of HCP's working at health centres. Lower financial income can also affect the HCP's potential to afford and access recourses (Asemahagn MA 2014). Those HCP's paid lesser wages may not afford to have smart phones and pay for internet. This might have negatively affected their knowledge sharing experience. This finding implies the need to consider better mechanisms to enhance HCP's access to standard e-resources and internet service. Mechanisms that increase the HCP's access to online and offline PCC resources may increase the knowledge level of HCP's.

### **3<sup>rd</sup> The HCP's Profession**

The third factor was the HCP's professional background. Compared to medical doctors, nurses and midwives altogether had the probability of not totally providing PCC by more than two times (AOR=2.4, 95% C.I. 1.3 - 4.6). Reported inconsistencies in the provision of PCC across the HCP's professional disciplines are common. There is also a confusion and lack of clear directives to guide who should implement PCC (Voorst SV et al 2016).

### **4<sup>th</sup> The HCP's opinions on who should provide PCC**

The Last factor identified in this study was HCP's perceived expectation on who should provide PCC. Those HCP's who possess a perceived expectation that 'PCC should be given by selected HCPs' had odds of not totally practicing PCC than those who expect PCC should be given by all HCP's (AOR=2.0, 95% C.I. 1.3-3.3). The WHO and the CDC denoted that all health care professionals have crucial part in the provision of PCC (CDC 2006, WHO 2-13a). The Fleuren et al (2004), also reported existence of support system, presence of feeling of accountability, knowledge, and skill as determinant to not implementing an evidence based practice. Absence of PCC policy, PCC guideline, PCC protocol, and training on PCC might be the reason for the reported HCP's perceived understanding on who should provide PCC.

## 5<sup>th</sup> Competing Demand

This factor was not among the key factors identified with the quantitative approach. Participants listed out issues related to “...HCP's -Patient ratio...”, “...Patient load...”, “...The less priority is given to the PCC...”, “...the existing traditional action when the problem happened...”, “...Focus on the secondary prevention, not on the primary...”, the tendency of “...Prioritizing other problems outlaying PCC....” and “...Presence of other services issues deserving priority than PCC...” These were all issues raised to explain the actual competing demands facing the HCPs and potentially limit the delivery of PCC.

However they also proposed the possible solution to facilitate the practice of PCC by the HCPs. They all emphasized that PCC can be given at all levels of the healthcare system of the country. They also stressed the need to preparing one dedicated PCC clinics at each facility and deploying a specially trained staff at these clinics to solve the problem. The other HCPs may refer the client after identification of clients and providing brief PCC information. This can be done using an interfaculty transfer form. Components of PCC, like health education, can be given by Health extension workers at community level. Those cases demanding specialty care and advanced investigation can be referred to the various levels within the health care referral tire. School teachers can also be trained to take their part in teaching the youths. Pharmacists also can provide advice by screening their clients. By doing so, it will be easier to reduce the burden and time taken by busy clinicians.

**Discussion:** The presences of competing preventive or curative routines or practices are issues most frequently reported for non-implementation of PCC by health care providers. Presence of competing demands was reported from a research conducted among general practitioners (Mazza et al, 2013). Nevertheless, task sharing, team work and involvement of other non health professionals working in sector organization may solve the challenges related to the presence of competing demands.

### 4.2.3. Characteristics of the PCC (Innovation ) Strategy

**Finding from the quantitative Study:** The factors related to the PCC innovation strategy didn't showed statistical significant association. Nevertheless, a number of factors under

this domain were identified by the qualitative research participant to explain the question ‘why HCPs are not implementing PCC?’

**Table-7: Availability of known policy document guiding HCPs PCC Practice (n=634). Hawassa, Southern Ethiopia, 2017**

Did your organization have policy and procedural document Guiding the PCC practice in your health institution?			
	Don't know	474	74.8
	No	160	25.2
Have you ever seen PCC protocol or guideline prepared by EFMOH?			
	No	634	100%
Ever read PCC guideline or protocol prepared by organizations other than Ethiopian FMOH?			
	Yes	315	49.7
	No	319	50.3

**Evidence from The Qualitative Study:** The list of the participant’s perceived determinants hindering the implementation of PCC by HCPs included absence of PCC Policy in the country, absence of PCC Guideline, lack of laboratory facilities and setup, lack of accountable body to run the program at higher level, absence of research for change in the country, economy, lack of public information broadcasting by the mass media, absence of teaching on PCC by the HCPs, and absence of person or organization to taking the first initiative to introduce PCC in the country.

Affect their day to day practice. One practitioner working in the HIV/ART clinic stated that

*“...if we don’t have policy direction we can’t-do anything. What we practice on the ground is all that we are given based on the policy and guideline. We always practice what we are accountable for...Every HCP automatically perform what he/she is expected to do...other ways nobody will do...”*

*The other pharmacist also stated*

*...the HCP’s, as part of their clinical practice, may give PCC to their clients informally and inconsistently. For example, a gynaecologist may consider Folic acid supplementation when he found NTD case. Clinicians managing a woman with chronic disease may consider preconception precautions. But unless and other ways supported by policy direction and PCC guideline it may not be given formally*

*and uniformly across the country.... for example, after graduation we knew from experience that we should provide folic acid to women. Nevertheless, there is no clear guideline stating the possibilities of dispensing Folic acid tab to these women... as an example one day Indian women asked as to provide her folic acid supplementation. But we didn't have any guideline to provide Folic acid supplementation to non-pregnant women.... ”.*

The third determinant reported by the study participants was the absence of lab facilities and setup. The most commonly mentioned facility was regarding the absence of HbA1c test and genetic screening tests. One key informant haematologist participated in the study stated.

*“...most of the haematological testes like the STI Screening, HIV test, and others can be screened at all levels of the healthcare system. Nevertheless, conducting the genetic screening tests may not be feasible...”*

Other key informant participated in the study had a similar concern with the haematologist. He indicated that

*“...The genetic screening tests in Ethiopia are mainly practised for research purpose. And these are practised at the capital Addis in several National and privet laboratories.”*

Another general practitioner participated in the study also added the anticipated possible higher cost the patient should pay for these screening tests. They all agree the non-availability of HbA1c in the public health facilities makes it difficult. Nevertheless nowadays, one of the laboratory technologists indicated that, some DM patients are getting HbA1c rapid tests from the DM association.

The other factor mentioned in relation to the PCC (innovation) strategy is the 'absence of teaching using the mass media and health education to the community. As to the participant's perception, lack of awareness or knowledge among the community is a factor limited the communities PCC need. One participant stated

*“...If they were aware of the value of preconception health, they would have asked us. If we were asked, we would have started providing the PCC service...”*

The other factors mentioned in relation to the absence of country-level research on the area and absence of organization or person taking the first initiative to introduce PCC in the country were the last factors determined the non-implementation of PCC by the HCPs.

### ***Presence of Other facilities & resources to assist HCP’s PCC implementation***

**Finding From quantitative study:** The current study findings regarding some of the resources needed to implement PCC are shown in Table-8. More than one-third (74.3%) of the HCP’s claimed they had access to internet services. The proportion of HCPs using their Smartphone to access and or share clinical resources was 57%. Half (50%) of the HCPs were working in public health facility lacking library. All of the HCPs (100%) didn’t see or access any PCC guideline prepared by the FMOH of Ethiopia.

**Table -8: Health care Providers’ access to PCC resources, PCC training demand, and will to implement PCC (n=634). 2017, Hawassa, South Ethiopia**

<b>Selected questions</b>	<b>Frequency (n)</b>	<b>Percent (%)</b>
Do you have access to internet service?		
Yes	471	74.3
No	163	25.7
Do you use your smart phone to download and or receive, and or share clinical electronic recourses?		
Yes	366	57.7
No	119	18.8
Don't have Smart phone	149	23.5
Did your hospital or HC contain library service?		
Yes	322	50.8
No	312	49.2

### **Discussion**

Absence of PCC Policy in the country, absence of PCC guideline, lack of laboratory facilities and setup, lack of accountable body to run the program at higher level, absence of research for change in the country, economy, lack of public information broadcasting by

the mass media, absence of teaching on PCC by the HCPs, and absence of person or organization to taking the first initiative to introduce PCC in the country.

The absence of the PCC policy is ascertained by the current subsequent researches such as the quantitative, qualitative and policy document analysis works. From these findings it seems that, so far, the FMOH of Ethiopia didn't yet chose what to do and what not to do in regard to PCC. Absence of a document stating the choice of the government whether to implement or not implementing PCC in the public health institution implies absence of current National PCC policy (Fitzpatrick JJ, Wallace M 2006:249). Presence of health policy on a given health intervention can show the countries' deliberate and purposeful contribution to initiate the cascades of actions result stronger health system (WHO 2012b).

Absence of the PCC policy in the country, as it is perceived by the study participant, might have negatively affected the PCC implementation by the HCPs. Absence of health policy and clear PCC guidelines may not only affect PCC implementation, but also the scope of providers practice (Fitzpatrick JJ, Wallace M. 2006:249). Lack of the policy may explain to the providers expressed role confusion on who should provide PCC. The study clearly indicated that, provider's who perceive "...only selected health professionals should provide PCC..." were less likely to provide PCC.

The need to availing PCC guidelines to HCP's is highly recommended (WHO 2012, CDC 2006). Nevertheless, 100% of all the HCP's never sewed or received a PCC guideline prepared by the Ethiopian FMOH. However, nearly half (47%) of the HCPs reported that they had seen a guideline document stating about PCC. Through this study, it was not possible to evaluate the degree to which they read and understand about the messages on the documents they sew. This is also not the intent of the study. The logistic regression analysis described below (Table - 6) identified that being exposed to PCC guidelines prepared by organizations other than the FMOH as factors increased HCPs good PCC knowledge.

This study identified absence of responsible body to direct and coordinate the PCC work. The absence of this body with in the current organizational structure of the FMOH implies that PCC is not yet well introduced. The study from the Netherlands reported similar finding in that absence of a formal and well known PCC coordinating body as a barrier to non-

implementation of PCC (Sijpkens MK, Steegers EAP Rosman AN. 2016). Since PCC is a crosscutting issue, assignment of one responsible coordination directorate may be helpful in initiating and sustaining the provision of the service delivery in the country (WHO 2013b, Kroelinger C, Ehrenthal D 2008). This delegation or establishment of the directorate coordinating the PCC service may also serve as a means to igniting the diffusion of the innovation PCC within the health care organization and also continuous preconception health information provision to the public.

The countries poor economic status is one of the HCPs' anticipated determinants to non-implementation of PCC. The additional concern of the HCPs' also the client's may not afford out of pocket to the services. The HCP's concern is worthwhile to think a head of setting a PCC policy. Fortunately, the PCC is largely focusing on the primary prevention of APO through health education and counselling (WHO 3013a). This is, there for cost saving to both the public and as well to the Government (Van Der Zee B, De Beaufort I, Temel S, De Wert G, Denktas S, Steegers E 2011).

As the WHO recommended, there are also number of PCC intervention being implemented nationally (FMOH 2015). Above all the comparative advantage of PCC, compared to the human and economic costs to an adverse pregnancy outcome by far is insignificant. The evaluation of the 26 year PCC implementation experience of the Hungary showed that PCC is best in reducing APOs (Czeizel AE 2012). One study report from china strongly recommended the need to offer free PCC care for rural residents or citizens of low socioeconomic status (Zhou Q, Zhang S, Wang Q, Shen H, Tian W, Chen J, Acharya G, Li X. 2016 ). The implementation of PCC in Ethiopia can be started with the principle of 'the low hanging fruit first' principle. Thus, leveraging PCC on the existing PCC components may not require additional expense (WHO 2013b).

Presence of required resources and facilities are vital to facilitating the PCC implementation process. A study from Barnsley reported lack of resources to provide preconception care as one of the key barriers (Heyes T, Long S, Mathers N 2004). In the contrary absence or shortage of the resources is factor hampering the diffusion of innovation in the healthcare system (Fleuren M et.al, 2004, Mason E, Chandra-Mouli V, Baltag V, Christiansen C, Lassi ZS, Bhutta ZA 2014). Possession of smartphone by 50% and access to the internet by 75% of HCPs working in the PHIs of Hawassa, even though



not adequate, Is an opportunity to diffusion of PCC information(Van Dijk MR,Koster MP, Rosman AN, Steegers-Theunissen RP. 2017a, Van Dijk MR, Oostingh EC, Koster MP, Willemsen SP, Laven JS, Steegers-Theunissen RP 2017b ). Through the already existing channel of communication, it will be possible targeting about 50%-75% of the HCP's. Provision of smartphone or tablet to all HCP's may be another future consideration to provide an online and off line electronic library service.

#### **4.2.4. Characteristics of the Organization**

As perceived by the participants of the study, the existing limited health care staff capacity is one of the determinants to the non- implementation of PCC. The participants explained the staff capacity in terms of absence of trained staff on PCC and absence of expert in the field.

**Discussion:** The US Surgeon General's conference conducted in 2009 recommended the urgency or need to adequately informing all clinicians to start or initiate PCC to prevent the serious APOs (Ashton DM, Lawrence HC, Adams NL, Fleischman AR. 2009). The WHO 2013 assembly also stress the need to training HCP's on PCC (WHO 2013a). Unless the HCPs start screening the clients, provide PCC counseling and manage identified preconception risk factors, the occurrence of APO will continue claiming the life's of millions(CDC 2006). Contrary to this recommendation are findings obtained in this study. The limited staff capacity and absence of expert in the field can be solved through incorporation of PCC in the pre-service training courses of all HCPs and also provision of an in-service-training on PCC. Nevertheless, the policy document reviewed in chapter five revealed that there is no such effort in the country (Chapter five). A current study conducted at Scotland implies the need of taking action at an individual, community, and also organizational level to changing the status quo (Goodfellow A, Frank J, Mcateer J, Rankin J 2017).

## **Characteristics of the socio-political context**

Lack of public awareness about preconception health and care, presence of unplanned pregnancy and poor health seeking behaviour were among the anticipated determinants contributing to the non-implementation of PCC. The poor economic status of the clients was also discussed as the possible determinant.

**Discussion:** Lack of public awareness, presence of unplanned pregnancy, client's poor health seeking behaviour, and the poor economic status of the clients were determinants to the provision and uptake of PCC as reported by some studies (Sijpkens M 2016, M'Hamdi HI et al 2017, Poels M, Koster MP, Boeije HR, Franx A, Van Stel HF. 2016, Mazza D et al 2013). The EDHS 2016 report denoted that the majority 75% of births in Ethiopia are wanted and planned only the 8% were reported unwanted. The remaining 17 % were only mistimed. Compared to the USA and other reports the Level of unplanned pregnancy in Ethiopian is lower. Nevertheless the 25% unplanned pregnancy coupled with the 4.5 TFR makes the number of women presenting with unplanned pregnancy higher (EDHS 2016). The implementation of PCC intervention in lower age with the perspective of Life course model can reduce the existing number of unplanned pregnancy to a lower level (Verbiest S, McClain E, Woodward S 2016).

The poor health care seeking problem may be rooted in client's poor PCC awareness and also the existing poor socioeconomic status limiting the client to pay for the service. These determinants can be solved with the application of PCC and preconception health recommendations by WHO and the CDC (CDC 2006, WHO 2013a). This includes increasing the public awareness and enhancing individual's responsibility across the life span. Adjustment of locally or nationally applicable health care financing system may be applied to remove the financial or socioeconomic barriers to provide or uptake PCC. Nevertheless, making the PC free like to that of other maternal health care services made free of charge in Ethiopia will be best option to grant access to PCC to all the eligible citizens (FMOH 2015). The study from china is a study that showed the effectiveness of free PCC service provision and recommending the need to making the service free for the rural community (Zhou Q et al 2016).

#### 4.2.5. Characteristics of the Innovation (PCC)

Absence of formally recognized setup to the provision of PCC is one of the very important factors raised by the discussants. One participant described this case in the following way

*“...when we were students we directly go to ANC clinic to practice what we learned in the theoretical class. But we didn't have the theoretical training and as well the setup to practice PCC. There is no separate clinic to practice. After graduation the facilities where we are currently working also don't have the setup for PCC provision. Still ANC is an entry point...”*

Thus, they highly recommended the need to arranging a setup in all public health institution to foster the provision of PCC.

**Discussion:** The implementation of PCC like any other health care interventions require policy directives, guidelines and protocols or a policy and procedural document guiding the provider of the care. The absence of reported formally recognized setup in the public health institutions of Ethiopia, one of the HCP's perceived determinants to not-implementing PCC, is therefore a critical issue requiring meticulous attention. Presence of the setup in all the PHIs facilitates the trainability of the PCC. Absence of the setup, in the contrary, makes the HCPs untrained. This is most important factor reported by implementation researchers in the health care field (Fleuren M et.al 2004, Fleuren M).

The study conducted in Netherlands also demonstrated that the negative effect of absence of clearly assigned coordinating body. This was a case presented as a determinant to not implementing an interconception care among the general practitioners (Poels M et al 2016). The setup as explained by the study participants may also include facilities, equipments and supplies to provide PCC. The provision of PCC however may not require extra and expensive resources. The local context epidemiologic conditions and the socioeconomic status of the country can be considering customizing the application or provision of PCC in the local context (Mason E et al 2014). Since it is largely a preventive and health promotive intervention, the countries existing resources can be sufficient to incorporate PCC in the existing services (WHO 2013a). The most important consideration, however, should be assigning a responsible body across all the ladders of the health care

administration (WHO 2013b). Especially, as the study participants proposed, the assignment of coordinating body at facility level can facilitate the implementation of PCC in the facility.

### **4.3. What should be done to implement PCC?**

In response to the question '*what should be done to implement PC?*', the participants of the study proposed the lists of recommendations shown on table-9. The main recommendations include the need to; enhancement of the community awareness, setting of a national PCC policy, developing or adopting PCC guideline, provision of PCC training to all HCP's and other individuals implementing PCC, revising curriculums to integration of PCC, establishment of setup and accountable body, changing the current practice, and conducting research to enhance PCC service delivery. These are in line with the recommendations given by various researchers, professional associations, researchers the CDC and the WHO (Lang AY, Boyle JA, Fitzgerald G, Teede H, Mazza D, MoranLJ Harrison C. 2017, Wilkes J. 2016, CDC 2006, WHO 2013, Nypaver C, Arbour M, Niederegger E. 2016)

**Table-9: Summary of the recommendations to implement Preconception care in Ethiopia as proposed by study participants. October, 2017, Ethiopia**

**INCREASING COMMUNITY AWARENESS**

- ✓ *Increasing community awareness through the mass media and health educating*
- ✓ *Using public conferences as a means to disseminate the information*
- ✓ *Awareness creation Deserve priority*
- ✓ *Formation of club on PCC or integration of PCC in existing reproductive health school clubs*

**POLICY**

- ✓ *Setting a national PCC Policy*

**PCC GUIDLINE**

- ✓ *Preparing PCC Guideline (What, Where, How, Who, ...)*

**TRAINING**

- ✓ *Provision of In-service training to all HCPs*
- ✓ *Pre-service training to all students health professional students*
- ✓ *Training of the current students up until the curriculum revised*
- ✓ *Targeting on reproductive aged students at high school and universities*
- ✓ *Training school teachers and university instructors on PCC*
- ✓ *Training the Policy makers on PCC*

**CURRICULUME**

- ✓ *Integration of PCC in the curriculum of the HCP training courses*
- ✓ *Integrating PCC in high school and college common courses*

**ESTABLISHMENT OF SETUP AND ACCOUNTABLITY**

- ✓ *Assigning accountable and responsible body within the FMOH to run PCC*
- ✓ *Establishing a dedicated PCC clinic at facility level and staffing it with specially trained staffs and availing the necessary facilities*
- ✓ *Facilitating training environment to HCP students or trainees*

**CHANGING PRACTICE**

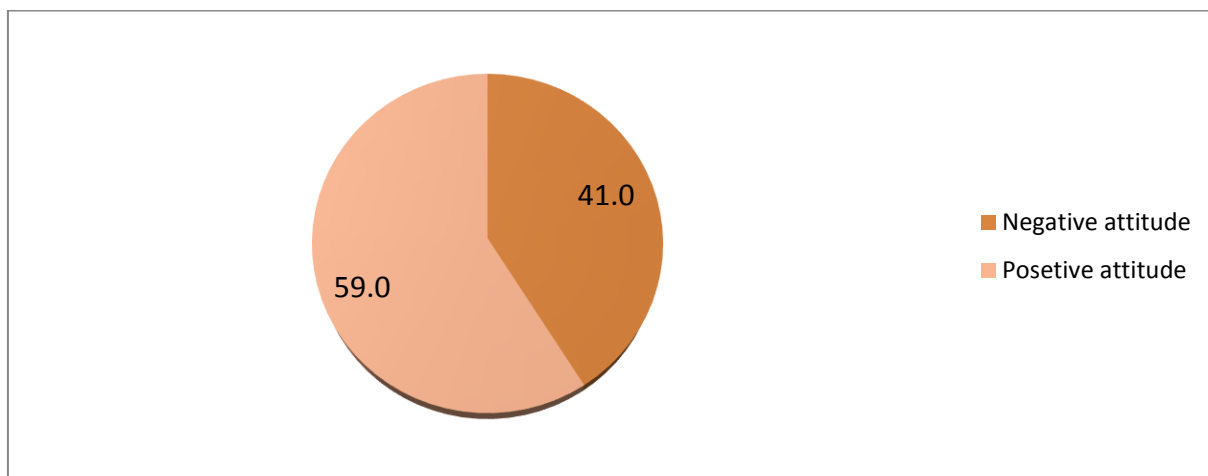
- ✓ *Integrating a single reproductive life plan (RPL) screening question on all history taking format e.g. FP history taking format*
- ✓ *The focus of FP should focus on making the next pregnancy safer not only on delaying of the subsequent pregnancy*
- ✓ *All health care professionals should provide PCC.*
- ✓ *All clinicians and pharmacists should start with RPL*

**RESEARCH FOR CHANGE**

- ✓ *Conducting research to enhance the PCC service delivery*

#### 4.4. ATTITUDE OF HEALTH CARE PROVIDERS TOWARDS PCC

Assessment of the HCP's attitude towards PCC showed that, more than half (59.0%) of healthcare providers poses a favourable attitude towards the implementation of PCC in Ethiopia. The attitude of the HCP's never showed statistically significant association as a predictor to both HCP's PCC knowledge and HCP's PCC practice (Figure-9).



**Figure-9: Attitude of health care providers towards preconception care. Hawassa, 2017, South Ethiopia**

#### Discussion

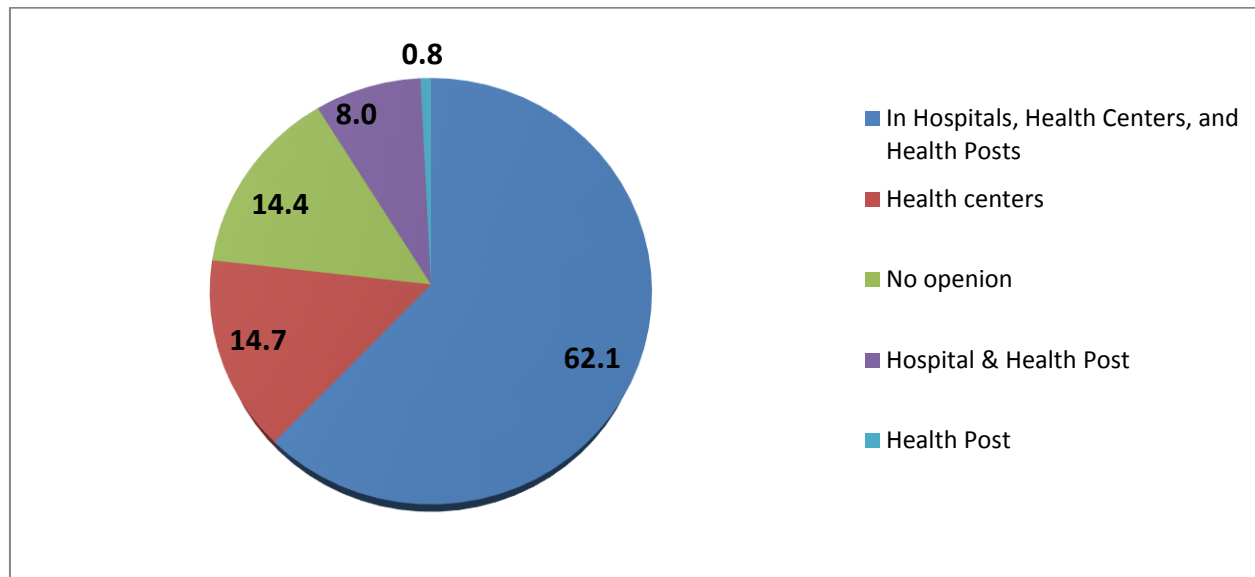
Based on the theory of planned behaviour, attitude is the most important predictor of the clinician's behaviour or practice (Ajzen I 1991). Attitude is one of the well-investigated barriers to the implementation or adoption of any evidence-based clinical or public health intervention including PCC. Making a policy, availing all the needed resources, conducting training may not guarantee the actual implementation of the desired intervention (Aarons GA, Glisson C, Hoagwood K, Kelleher K, Landsverk J, Cafri G.2010, Aarons GA 2004). Assessing the HP's attitude is therefore valuable. The reason why some of the HCP's developed a negative attitude towards PCC is an issue requiring another study(Michael E. J. Reding, Bruce F. Chorpita, Anna S. Lau, and Debbie Innes-Gomberg.2014). Fortunately, the result of this study shows that majority of HCPs, already, have a positive attitude. Moreover, 74.3% (n=47) HCPs are willing to incorporate PCC in their daily routine clinical practice. But, nearly all the participants (84.2%) indicated their need to get training on PCC. The negative attitudes may be dissolved with the training and experience sharing.

#### 4.5. WHERE AND WHO SHOULD PROVIDE PCC?

##### 4.5.3. Finding from the Quantitative Study:

###### 4.5.3.1. Where PCC should be given?

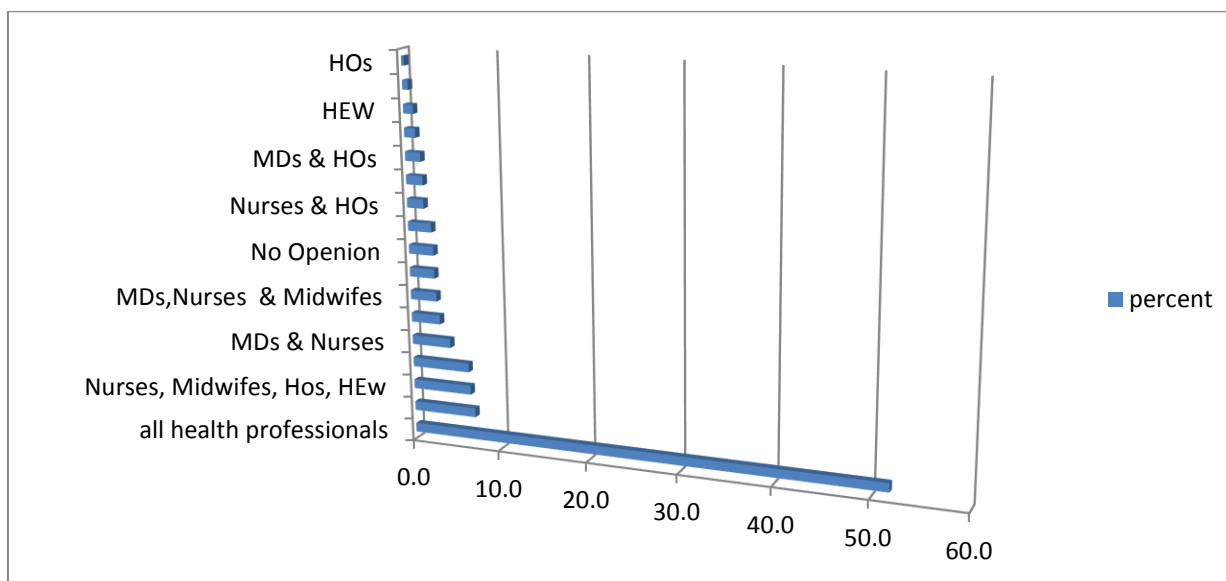
The study participants were given the chance to indicate their opinion on where PCC should be given. About two-thirds (62.1%) claimed the service should be given in all facilities such as Health Post, health centres and Hospitals (figure-10).



**Figure-10: Health Care Providers' opinion on where should PCC is given. Hawassa, 2017, South Ethiopia**

###### 4.5.3.2. Who should provide PCC?

When asked to propose who should provide PCC, participants of the study chose out of the eight options indicated on the self-administered questionnaire. They were also given the chance to write other than the lists. The study participants didn't write other than the given options. More than half, (51.9%), give their opinion that all healthcare providers; Medical doctors, nurses, midwives, public health Officers and Health Extension Workers should provide PCC. The remaining participants indicated specific care providers (figure-11)



**Figure- 11: Health Care Providers’ opinion on who should give PCC. Hawassa, 2017, South Ethiopia**

#### 4.5.4. Finding from the qualitative study:

##### 4.5.4.1. Where and who should provide PCC?

All the study participants agreed that PCC should be given at all levels of the healthcare system. These include Primary care units, secondary level hospitals and tertiary level hospitals. They also indicated the need for including school teachers, journalists, and another community setup to educate the public on PCC. In addition, they mentioned that PCC should be given by all health care providers based on their scope of practice, training and also directive given by the PCC guidelines.

**Discussion:** The target groups to PCC include all reproductive aged men and women of the society (Lassi ZS, Dean SV, Mallick D, Bhutta ZA 2014). With respect to the theory of life course perspective all human being from conception to the whole of their reproductive life course will have a chance to be negatively influenced to have an APO. Thus, all vulnerable or risk groups should be identified and receive the PCC (CDC 2006, Van Der zee B, De Beaufort I, Teme LS, De Wert G, Denktas S, Steegers E 2011). They should be provided with all knowledge and skills to optimize their own, partner, and families’



preconception health (CDC 2006). In order to address all the eligible of PCC, a group of researchers had developed three types of models of PCC. These are '*primary care model of preconception healthcare*', '*Hospital based model of preconception healthcare*' and '*clinic model of preconception healthcare*'. These models clearly showed that PCC need to be provided at all levels of the health care institutions and also the community level (Shannon GD, Alberg C, Nacul L, Pashayan N 2014).

Health care provider's perception on the question, *where and who should provide PCC?* can affect their intention as well actual implementation of PCC. Those who believe PCC should be given by selected health professionals and in selected places may abstain from practicing PCC unless they fulfil their perceived criterion. For instance, we found the PCC implementation was high among those professionals who perceived that all professionals should provide PCC (AOR=2.0, 95% C.I. 1.3-3.3). See the table shown above (figure-11).

All the qualitative participants suggest that PCC be given at all levels of the health care system by all HCP's. Whereas 50% to 60% of the HCPs participated in the quantitative study proposed that PCC should be given by selected HCPs and facilities. The variation noted in these findings may be liked to purposive inclusion of key experts and also the intentional brief explanation of PCC recommendations given at the third step of the FGD and KII process. There are similar findings reported a variation in HCP's responses to questions on who and where should PCC be given (Voorst SV, et.al 2016). The existing recommendations are, however, in line with the majority of the qualitative research participants' response and also all of the qualitative study participants. That means, all HCP's will have role to play in provision of PCC. Moreover, it also needs the involvement of other non-health professionals like school teachers, journalists, politicians, community leaders and also others (Goodfellow Aet al 2017, Fehr KR, Fehr KD, WHO 2013a, Protudjer JL 2011, Verbiest, S, Malin CK, Drummonds M, Kotelchuck M 2016a).

#### **4.6. MAGNITUDE OF APO: AS PERCEIVED BY THE HCPs**

The study participants were asked their perceived magnitude of APOs. All participants of the study agreed the magnitude of APO is so high to the extent taking the time of the HCPs and the consuming the limited resources. A number of participants give their experience that APOs are increasing. Especially one general practitioner stated

*“...most of the cases handled in the paediatric and gynaecology are clients with APOs.....”*

The other also mentioned

*“..... the number of babies admitted with congenital anomaly is becoming high these days and babies are dying due to shortage of equipments ....because there is no sufficient equipment to provide to all the cases...”*

The other stated

*“... as we are living in the developing region, from a continent where a higher prevalence and incidence of APOs reported, we are actually encountering the cases with miscarriage, still birth, LBW, PB, perinatal mortality, and neonatal mortalities...”*

All of the participants agreed on the issue that APO is higher and a well established public health problem demanding a priority attention.

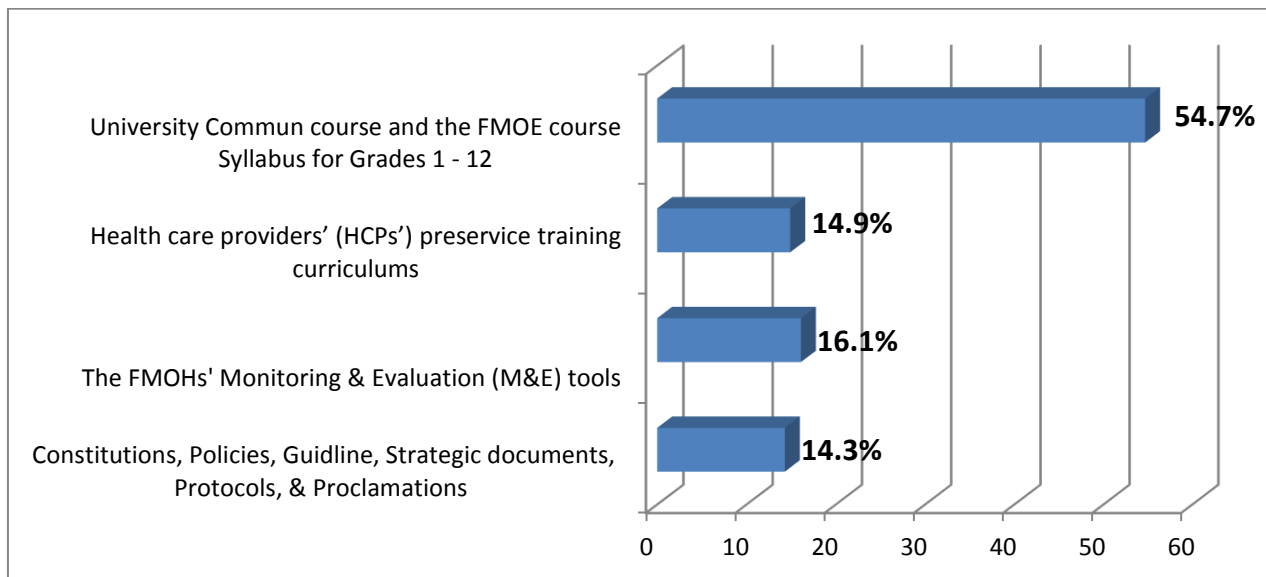
**Discussion:** Understanding the participant’s perception or awareness regarding the magnitude of the adverse pregnancy outcome is vital to the next preventive stapes. The participant’s response is in accord with the current reports stating the magnitude and occurrences of APOs are higher (WHO 2013a). Nevertheless, most of them expressed the reasons that they don’t have the figure. This may be due to non availability of system to make health care practitioners aware of the current condition. The other may be linked to absence of continuous monitoring and reporting system to evaluate the magnitudes, incidences, and prevalence’s of each types of APO in the country (Tessema T, Abuhay M. 1995, Liu QG, Sun J, Xiao XW, Song GR. 2016). Especially absence of registration and reporting system for congenital anomalies, miscarriages, still birth and others can obscure the actual magnitude of the problem (EDHS 2016, FMOH 2015). Despite this limitation, all the study participants participated in the qualitative study agree that the magnitudes of APOs in Ethiopia are high demanding serious public health intervention. Nevertheless, only a few participants could able to recognize PCC as evidence based intervention to tackle the problem. Moreover, the poor awareness regarding PCC was supported by the quantitative study reported above.

## CHAPTER 5

### POLICY DOCUMENT ANALYSIS:

#### FINDINGS AND DISCUSSION

Through the review, we identified a total of 168 policy documents of the FMOH and other health and health-related policy documents in Ethiopia. These documents were selected after our primary review of the abstracts and contents of the identified documents. These policy documents were documents fitting the predetermined inclusion criterion. Most of the documents identified in this study were found from ministry offices by the principal's investigators visit and contact of the heads or representatives of all respected departments of the ministry offices. The curriculum documents for the students were also obtained by conducting an official visit to elementary schools, high schools, colleges, universities and also concerned district, zone and regional offices. Some of them are directly found on the website of the ministry offices and also the WHO's library database (Figure-12).



**Figure-12: Type and proportion of policy document reviewed (n=168). 2017, Ethiopia**

The policy documents selected to the review were categorized into four major categories. These were; policies, strategic plans, clinical handbooks or manuals for HCPs, treatment protocols, practice or procedural guidelines, curriculum for HCPs training, & curriculum for students from grade 1-12 (Table- 12).

**Table-10: List of policy documents selected to study the incorporation of preconception care in Ethiopia**

<b>Title of the Policy document reviewed</b>	<b>Author</b>	<b>Year of Publication</b>	<b>Type of the Document</b>
Constitution of the Federal Democratic republic of Ethiopia	FDRE	1995	Constitution
Health Policy of the Transitional Government of Ethiopia	TGE	1993	National Health Policy
National population policy of Ethiopia	OPM	1993	Population Policy
Health sector transformation plan (HSTP): 2015/16 - 2019/20	FMOH	2015	Strategic plan
The national strategic plan for elimination of mother to child transmission of HIV (e-MTCT of HIV) 2013 – 2015	FMOH	2013	Strategic plan
Road map for accelerating the reduction of maternal and newborn morbidity and mortality in Ethiopia: 2012 – 2015	FMOH	2012	Strategic plan
National nutrition program	EFDRE	2013	Program
Diabetes Mellitus Module: Diploma Program for the Ethiopian Health Centre Team	Abebe D. et.al DU & FMOH	2005	Module for HCPs
Adolescent Reproductive Health Extension Package	FMOH	2003	Module for HCPs
Family Planning Extension Package	FMOH	2003	Module for HCPs
Maternal and Child Health Package	FMOH	2003	Module for HCPs
Vaccination Service Extension package	FMOH	2003	Module for HCPs
National Training on diabetes mellitus for Health care workers. Participants Manual	FMOH	2016	Training Manual for HCPs
Lecture note on family health for health extension workers	Gebremariam A, JU & FMOH	2004	Lecture note for HPs
Management protocol on selected obstetrics topics	FMOH	2010	Treatment Protocol
Management protocol on selected obstetrics topics for health centre	FMOH	2014	Treatment Protocol
Standard treatment guidelines for general hospital	FMHACA	2014	Practice Guidelines
Comprehensive integrated National PMTCT/MNCH/SRH Guideline	FMOH	2014	Practice Guidelines
National guidelines for comprehensive HIV prevention, care and treatment	FMOH	2014	Practice Guidelines
National guideline for family planning services in Ethiopia	FMOH	2011	Practice Guidelines
Technical and procedural guidelines for safe abortion services in Ethiopia	FMOH	2014	Practice Guidelines
National Expanded program on immunization implementation guideline	FMOH	2015	Treatment Guideline
Guideline for the management of federal hospitals in Ethiopia	FMOE and FMOH	2015	Management Guideline
The FMOH's Monitoring & Evaluation (M&E) tools*	FMOH	2017	M& E tools*
Health care Providers' (HCPs') curriculum**	FMOE & all Universities	2017	Curriculum
Syllabi for Grades 1 - 12. Ministry of Education*** supplementary website	FMOE	2011	Curriculum
University/common English courses	FMOE	2017	Course syllabus
University reproductive health common courses	FMOE	2017	Course Syllabus

## 5.1. THE CONSTITUTION AND OTHER LEGISLATIVE DOCUMENTS

The Ethiopian constitution is the supreme legal document of the country. This document states various issues related to the human preconception health. The articles regarding the human right issue, family issue, women and child right issues can be mentioned. Particularly Article 35:8 i.e. the right of a woman, states that

*“...Women shall have the right of access to education and information on family planning and the capability to benefit thereby so as to protect their good health and prevent health hazards resulting from childbirth...”*

**Discussion:** The ultimate aim of preconception care is optimization of women’s health (Lassi ZS, Dean SV, Mallick D, Bhutta ZA 2014). It is primarily a health promotion and disease prevention approach. Preconception care is one of the health promotion intervention reducing APO or ‘health hazards’ happening as a result of pregnancy and childbirth (Floyd RL, Johnson KA, Owens JR, Verbiest S, Moore CA, and Boyle C 2013). Being knowledgeable about preconception health and getting PCC service is, therefore, the constitutional right of every Ethiopian woman.

## 5.2. THE HEALTH POLICY OF ETHIOPIA

The health policy of Ethiopia (TGE 1993) is one of the government documents guiding the overall health service delivery in the country. The introductory part of the document acknowledges the fact that the Ethiopian health policy document is not the only document addressing the health issues of the country. But the policy document states the importance of considering other policies in such a way *“... Policies addressing population dynamics, food availability, acceptable living conditions and other requisites essential for health improvement...”* The policy document gives *democratization, decentralization and intersectoral collaboration* as a key strategic area to implement the policy. The document gives direction that the intersectoral collaboration helps to address health issues such as population and family planning, nutrition-related issues, safe water supply, environmental health, improvement of housing conditions transportation and other infrastructures. Health promotion and disease prevention are the principal focus of the health policy.

**Discussion:** The policy document (TGE 1993) doesn't state the phrase preconception care as it also doesn't mention many more health programs. However, it gives sufficient support to accommodate and guide the implementation of PCC in Ethiopia. The main focus of the countries' policy is health promotion and disease prevention. In accord with the policy document, PCC is mainly a health promotion and disease prevention healthcare service (Floyd RL et al 2013). Moreover, the strategies identified in the policy document such as intersectoral collaboration and health education are the best approach to address the multipronged dimensions of PCC.

The policy document also addresses issues related to protection of citizens from environmental hazards and wastes which is one of the concerns of PCC. Exposure to environmental toxins and contaminants during the preconception period is known to cause an APO and can cause a long lasting effect on the feats or the child. The effect may stay across the life course of the individual (ACOG Committee Opinion 2013). Thus every at risk reproductive aged individual should be counselled (Sathyanarayana S, Focareta J, Dailey T, Buchanan S 2012, Brenna JT 2012). The indicated housing condition, immunization, family health, nutritional issues are other core areas of the PCC (Vir SC 2016, Gardiner PM, Nelson L, Shellhaas CS, Dunlop AL, Long R, Andrist S, Jack BW. 2008, Coonrod DV, Jack BW, Boggess KA, Long R, Conry JA, Cox SN, Cefalo R, Hunter KD, Pizzica A, Dunlop AL 2008). Hence, the Ethiopian health policy document, in its current stance, is a sufficient document favouring the implementation of PCC in the country.

## **5.2. THE PROCLAMATION TO PROVIDE FOR DRUG ADMINISTRATION AND CONTROL**

The Ethiopian Food and Drug Administration and Control Authority (FMACA) is one of the Ethiopian Authorities established with the proclamation No. 176/1999 (FDRE 1999). This organization is responsible for preparing a list of required medications, diagnostic materials and supplies, medical equipment and supplies, pesticides, cosmetics and all other 'drugs' needed for treatment of human and animals. The authority is responsible to prepare the list

of diagnostic equipment and supplies, medical equipment and medications, and also any treatment materials needed for treatment and prevention of any illness.

**Discussion:** The FMACA has a lot of roles to play in the implementation of PCC in Ethiopian health care. This organization along with other concerned authorities may explain the missing items needed to implement PCC in Ethiopia. This organization is in the best position to explain the absence of HbA1c testing service that we identified in the previous quantitative and qualitative studies (chapter four). This is a recommended test to the preconception control of blood glucose in women with diabetes contemplating pregnancy (Mahmud M, Mazza D 2010). In such a case the FMACA is the most important organization to assure the availability, quality, and continuous supply of equipment medications and supplies needed to effect the implementation of PCC in Ethiopia.

### **5.3. THE HEALTH SECTOR TRANSFORMATION PLAN (HSTP 2015-2020)**

The HSTP document (FMOH 2015) is one of the guiding policy documents assuring the implementation of the National health policy in the country. This particular document is the fourth phase of the National Health Sector Development Programme (HSDP) which was a 20-year plan. The document states that the maternal child adolescent health and nutrition issue will be the top priority issue in the coming 5 years.

*“..Reproductive, maternal, newborn, child, adolescent health and nutrition will continue to be a top priority for the next 5 years. As indicated in the sustainable development goals (SDG), Ethiopia will intensify RMNCAH interventions to end preventable maternal and child deaths by 2030. The targets set in the HSTP are in line with the global aspirations...”*

The continued commitment of the government as stated in the document may potentially give a fertile ground to the implementation of PCC in the Country. This document doesn't actually mention the phrase 'Preconception care' directly. But it states about some components of the PCC.

*“...The main goal of the health system is ensuring that everyone who needs health services (promotion, prevention, curative, rehabilitative and palliative services) is able to get them without undue hardship...”*

**Discussion:** PCC is one of the evidence-based health promotion and adverse pregnancy outcome prevention practice which is proven to be cost-effective and cost saving (Rowlands I, Graves N, De Jersey S, McIntyre HD, Callaway L 2010, De weerd S, Polder JJ, Cohen-Overbeek TE, Zimmermann LJ, Steegers EA 2004, Van Der Zee B, De Beaufort I, Temel S, De Wert G, Denktas S, Steegers E 2011, Phillips KE, Flood G 2008). The mission of the health sector of Ethiopia is stated totally in agreement with the goal of preconception care. This is stated in the document that the mission of the health sector of Ethiopia is

*“...To promote health and well-being of Ethiopians through providing and regulating a comprehensive package of promotive, preventive, curative and rehabilitative health services of the highest possible quality in an equitable manner...”*

The effectiveness of health care interventions should be measured (World Health Organization 2007). Cognizant of this case, the FMOH in its HSTP has identified certain indicators to measure the performance of the health sectors. Some of the performance measures indicated in the document are indicators that can also be applicable to PCC (FMOH 2015). Preconception care is one of the primary components of the continuum of maternal and child care (Dean SV et al 2014) which help to achieve the performance measures set to be met by the end of the year 2020. This include

- *“...Reduce Maternal Mortality Ratio (MMR) from 420 to 199 per 100,000 live births”*
- *“...Reduce under five-year, Infant and Neonatal mortality rates from 64, 44 and 28 to 30, 20 and 10 per 1,000 live births...”*
- *“..Reduce HIV incidence by at least 60% compared with 2010 and achieve zero new Infections among children...”*



This strategic document specifically mention the elements of the continuum of maternal and child health care packages. The need to conduct cares such as ANC, INC, PNC, immunization, improving nutrition, environmental sanitation, and oral health, and mental health, management of chronic non-communicable and communicable diseases to achieve the national goal. Nevertheless, the phrase ‘Preconception care’ is not explicitly mentioned. If this document explicitly mentioned PCC by its name, the ministry could have developed its implementation protocol and also guidelines. From this case, it will be possible to infer that the case is not yet introduced in Ethiopia. If the PCC components were clearly and explicitly identified, the existence of the components of the PCC guided by this strategic document would have laid a fertile ground to start implementing PCC by leveraging on the existing program, as WHO recommended (WHO 2013a).

#### **5.4. THE POPULATION POLICY OF ETHIOPIA**

The population policy of Ethiopia (OPM 1993) is one of the policy documents influencing the demographic status of the country. For widely stated rationales, the document gives emphasis about the importance of making family planning service accessible. Among the rationales stated, demographic rationales, human right rationales, and health rationales are included. One of the objectives, in particular, is in harmony with the guiding objectives of preconception care. Through the implementation of this policy, the document asserts the possibilities of improving the economic status of the country, improving the health status of women and child and as well prevents environmental degradation. Among some of its contents, the following population policy objectives are stated. These are

- *“...Reducing maternal, infant and child morbidity and mortality rates as well as promoting the level of general welfare of the population...”*
- *“...Reducing the current total fertility rate of 7.7 children per woman to approximately 4.0...”*
- *“...Increasing the prevalence of contraceptive use from the current 4.0% to 44.0%...”*

Some of the strategies of the population policy include

- *“...Expanding clinical and community-based contraceptive distribution services by mobilizing public and private resources...”*
- *“...Promoting breastfeeding as a means of dealing with the problem of childhood malnutrition and increasing the time span between earlier and subsequent pregnancies through IEC ...”*
- *“...Rising the minimum age at marriage for girls from the current lower age limit of 15 to, at least, 18 years...”*
- *“...Establishing teenage and youth counselling centres in reproductive health...”*
- *“...Facilitating research program development in reproductive health...”*
- *“...Developing IEC programmes specially designed to promote male involvement in family planning...”*
- *“...Diversifying methods of contraception with particular attention to increasing the availability of male-oriented method...”*

This same document also put the importance of expansion and domestic capacity for training in population as one of the major areas population activities requiring priority attention. These are availing resources to existing institutions, integration of FP into the curricula of all health care providers' education, and also in-service training for the teachers and other development agents.

**Discussion:** While mentioning various issues related to the promotion of the preconception health and prevention of APO, this document however, doesn't totally mentioned the PCC implicitly or explicitly. The focus of the document is on reduction of population growth through the implementation of mainly the family planning methods. The inclusion of rising the age at marriage, breast feeding, counselling, education should never only target to limit family size but also optimization of women and their couple's preconception health. The reason for the lack of the inclusion of PCC in the document in a well recognizable way may be linked to the objective of the document. The issue of PCC was not also well communicated during the time this document was prepared. The issue of PCC was first raised as an international agenda 19 years after this document developed (WHO 2013a, WHO 2013b). Nevertheless, the CDC had released the recommendations on

PCC and preconception health just 13 years before the population policy of Ethiopia developed (CDC 2006, OPM 2016).

## **5.5. NATIONAL STRATEGIC ACTION PLAN (NSAP) FOR PREVENTION AND CONTROL OF NON-COMMUNICABLE DISEASES (NCD) IN ETHIOPIA**

The introductory part of this document (FMOH 2014) states about a large percentage of NCDs in the country can be controlled or prevented by reducing those prevalent avoidable and modifiable risk factors observed in the country. These factors, as indicated in the document, are; tobacco use, physical inactivity, alcohol use, and unhealthy diet. This document is designed to meet a national goal which is consistent with the WHO's Global action plan for prevention and control of NCD from 2013-2020. The goal is

“To reduce the burden of morbidity and disability and avoidable mortality due to noncommunicable *diseases among Ethiopians*”

To attain this goal the FMOH has devised strategies such as,

“**Strategy 1:** Health promotion and disease prevention by increasing public awareness and education”

“**Strategy 2:** Health promotion and disease prevention that targets Ethiopia's five major shared risk factors for NCD and other predisposing factors”

**Discussion:** The strategic document is envisioned on the basis of values and principles such as ‘*Life course approach*’, ‘*multi-sectoral response*’, ‘*services integrated within the existing health care system*’ & also ‘*population-wide and individual health care interventions*’. The envisioned values and principles are congruent with the principles and values required to implement PCC. The CDC PCC recommendation identifies the life course approach as an important tool (CDC 2006). Different studies and organizations also recommend that PCC should be given at all levels of the healthcare professionals (Shannon et al 2014, WHO 2013a). Without the involvement of other sectors like the ministry of communication, the ministry of education, Ministry of finance and development, the implementation of PCC may not be feasible. This strategic document is a document which partly addressing the component of preconception care in the country.

The issues addressed through NASP are highly important to address the wider public health problems. These problems include APOs happening as a result of micronutrient deficit, overweight and obesity, underweight, physical inactivity, happening as a result of substance use, alcohol use, active tobacco smoking, exposure to tobacco smoke, and khat chewing. This document, therefore, is a crucial document containing public health interventions applied to optimize the preconception health of women. Like the previous policy document (OPM 2016) the existence of PCC and the values of this intervention to the prevention of APO don't seem well understood by the designers of the document. Especially the Life course model underpinning the NASP is a model that widely applied in the PCC implementation programs (Rohan A M, Onheiber PM, Hale LJ, Kruse TL, Jones MJ, Gillespie KH, Lathen LS, Katcher ML 2014, Pies C, Kotelchuck M 2014). Therefore, the NASP is one of the documents stating a program which is already integrated. This can serve as one of the area to leverage on PCC in the country (WHO 2013b).

## **5.6. NATIONAL NUTRITIONAL PROGRAM**

This document is a revised and was devised by the government of the Federal Democratic Republic of Ethiopia (EFDRE 2013). This document gives account to the Government's recognition regarding '*multisectoral and multidimensional nature of nutrition*' and also the impotence of '*focusing on a Lifecycle approach to map key action needed to improve the nutritional status of strategic target groups (women and children)*' and also the need to strengthening the '*Food Fortification Programme*'. Among the strategic objectives, the first is objective regarding optimization of adolescents and reproductive-aged women. It says

*"...Strategic objective-1: Improve nutritional status of women (15-49years) and adolescents (10-19 years)..."*

The baseline (the 2010/2011) proportion of women of reproductive age with BMI<18.5 was 27%. The NNP target to reduce the observed prevalence for the year 2015 was from 27-19%. The document, however, clearly stated target for strategic objective. This is about reduction of proportion among the adolescent girls. The remaining target and strategic objectives are focusing on pregnant and lactating women.

**Discussion:** The indicated targets, in the actual sense may address the concern of preconception care related to underweight (Murai U, Nomura K, Kido M, Takeuchi T, Sugimoto M, Rahman M 2017). However, the less attention given to reproductive-aged non-pregnant women needs great preconception care attention. Women with lower BMI are known for having a risk of developing APO. Women with such a case contemplating pregnancy are advised to attain their BMI before conception (WHO 2013, Murai U, Nomura K, Kido M, Takeuchi T, Sugimoto M, Rahman M. 2017).

The focus of reducing anaemia is mainly targeting the women with already established pregnancy. The iron-folate supplementation along with FANC nutritional advice is also considered as a means to reduce the magnitude of the problem (FMOH 2014c). However, studies conducted on adherence to an outcome to antenatal Iron Folate supplementation are not satisfactory (Taye B, Abeje G, Mekonen A 2015, Nik mazlina M, Ruziaton H, Nuraini DB, Izan Hairani I, Norizzati B, Isa MR, Mimi O 2014). Thus considering such challenging case before conception using PCC as an entry point will bring better treatment outcome. Besides the separate folic acid tablet supplementation should be considered for all reproductive-aged women and especially for all women contemplating pregnancy at least three months before conception This is one of the strong evidence-based universal recommendations by WHO & CDC (WHO 2013b, CDC 2006), but not practised in Ethiopia except mothers enrolled in PMCT

The existence of programs like comprehensive and routine nutritional assessment to adolescents and pregnant women, promotion of use of fortified foods, the food fortification like salt iodization regulation, school-based bi-annual de-worming, counselling delaying first pregnancy after the age18, and avoidance of food taboo are all part of the PCC activity run by NNP programs (EFDRE 2013). The efforts made in health education and nutritional counselling with available channels of communication, professionals training on nutrition and the existing intersectoral collaborative efforts are fertile ground to foster the implementation of PCC in Ethiopia.

## 5.7. FAMILY PLANNING GUIDELINE

The family planning document is a document prepared by the FMOH in 2011(FMOH 2011, FMOH 2011). This document indicates is prepared mainly to guide providers practice and the supplies chain management issue with regard to FP in Ethiopia. The guideline document mentions the health benefits of FP as

*“...Family planning reduces mortality and morbidity from pregnancy and childbirth. Spacing childbirth with intervals of three to five years significantly reduces maternal, perinatal and infant mortality rates. Use of FP prevents the depletion of maternal nutritional reserves and reduces the risk of anaemia from repeated pregnancies and birth...”*

This document also states about the prevention and Management of Infertility in such a way

*“...Management of infertility is expensive, requires sophisticated services. More than 80% of female infertility is due to infections. The role of Family Planning is mainly in STI prevention, by promotion of responsible sex behaviour, use of condoms, screening and treatment, counselling, referral and services where indicated...”*

The document also puts the strategy for delivering FP service in Ethiopia this is indicated as shown below.

*“...Family planning should be given at all level of care i.e. starting from the PCU, General Hospitals and Specialized hospitals...”*

*“...FP should be provided by all but trained health professionals, HEW, Nurses, Midwives, Health officers, medical doctors, laboratory technicians (Trained)...”*

*“... It should be given integrated with other RH care services (HCT, PMTCT, ANC, CAC, PAC, HIV/ART, EPI...”*

The document further made the modalities of FP service delivery clear in that it should be given through community-based services, facility-based FP services, social marketing and also outreach services.

To address the FP needs of people living with HIV/AIDS (PLWHA), especially women, the guideline document states

*“... HIV positive women shall be informed about the implications of pregnancy and prevention of pregnancy shall be encouraged....”*

This guideline document also includes the issue of information education and communication (IEC) or the behavioural change communication (BCC) as a crucial component of the FP service as follows.

*“...The aims of the IEC /BCC in family planning are*

- *“To increase awareness and use of family planning /child spacing methods and other relevant reproductive health services....”*
- *“..Promote client-provider interaction....”*

**Discussion:** The population policy of Ethiopia (OPM 1993) and the Ethiopian Family Planning Guideline documents (FMOH 2011) are the two related documents focusing on the family planning care. Family planning is one the public health intervention area and also a component of preconception care that helps to space pregnancy up until the women’s health optimized and feet for pregnancy (Farahi N Zolotor A. 2013, Klerman LV 2006, Lassi ZS, Mansoor T, Salam RA, Das JK, Bhutta ZA 2014b). Nevertheless, in this policy documents, the phrase preconception care is not totally mentioned. The frequently mentioned rationale for family planning in this document is to delay pregnancy and get the advantage of reduced family size. Particularly on the FP guideline document (FMOH 2011), the danger of delayed pregnancy beyond the age of 35 is not mentioned as preconception risk.

The FP care provider is one of the ideal professional to provide PCC (Gavin L, Moskosky, Carter M, Curtis K, Glass E, Godfrey E, Marcell A, Mautonesmith N, Pazol K, Tepper N, Zapata L, and CDC 2014). FP Guideline documents are also expected to guide the practitioner to integrate PCC in their daily activity. The current FP guideline, however, didn’t included guidelines of PCC. This gap might happen as a result of non-familiarity of PCC in Ethiopia.

The currently functional FP delivery strategy in Ethiopia, as guided by the policy document, is the best possible way to avail PCC integrating it with the FP service. The health education IEC/BCC works regarding FP may also incorporate PCC. The health policy of Ethiopia (TGE 1993) and the population policy of Ethiopia (OPM 1993) may lay a base to the implementation of FP care in the country. This shows that the implementation of any health care program in the country may be facilitated by the presence of clear and obvious statements on the policy documents.

## **5.8. ROAD MAP FOR ACCELERATING THE REDUCTION OF MATERNAL AND NEWBORN MORBIDITY AND MORTALITY IN ETHIOPIA**

This document was drafted in 2013, with the objective of accelerating “... *the reduction of maternal and newborn morbidity and mortality in order to achieve the Millennium Development Goals (MDGs) related to maternal and newborn health in Ethiopia...*” (FMOH 2012f). This document is a document which clearly showed the stakeholders role in achieving the targeted MDG goals. This roadmap is a document clearly described the strategic intersectoral collaboration required to reduce the maternal and newborn mortality and morbidity. As described in the document the role of the various minister office of the country plays various roles. The document also explicitly delineates the specific roles of other sectors in the country (Table-11). This includes the role & responsibilities of development partners, civil society organizations, the private sector, and training and research Institutions.

**Discussion:** The document along with signed memorandum of understanding documents between the listed organization and the FMOH can serve as a guiding document. The shared goal amongst the various sectors is about the reduction of maternal and neonatal mortality. This is, therefore, key to the implementation of PCC in the country. The WHO PCC policy brief document (WHO 2013b) does also emphasize the intersectoral collaboration, mobilization of available financial resources, the creation of national platforms and partnerships to ensure political commitment as the best strategy for countries action.



**Table- 11: The role of the various minister offices in the reduction of maternal and newborn mortality and Morbidity. Data abstracted from FMOE draft road map document, Ethiopia**

<b>Minister offices</b>	<b>Roles of the Minister office to reduce maternal &amp; Newborn Mortality</b>
<b>Minister of Finance and development (MOFED)</b>	<i>"...giving priority to health, especially MNH, in budget guidelines for allocation of itemized resources and increase financial resources for health to meet the need and especially implementation of MNH activities as guided by the MNH Road Map..."</i>
<b>Ministry of Education (MOE)</b>	<i>"...Reviewing and updating components of MNH and SRH in various school and pre-service curricula in collaboration with FMOH."</i>
<b>Ministry of Agriculture (MOA)</b>	<i>"...promoting food security at household, community, district and national levels..."</i>
<b>Ministry of Works and Urban Development (MOWAD)</b>	<i>"... Improving road networks to facilitate access to services at primary and referral levels, especially in rural areas..."</i>
<b>Ministry of Women Youth and Children (MOWYC)</b>	<i>"...Facilitating the establishment of community mechanisms to support emergency transportation for MNH services, advocating for gender issues to improve MNH decision-making at all levels, supporting and promoting rights-based approach to programming for MNH and advocating for revision of laws, legislations and policies to improve MNH..."</i>
<b>Ministry of Communication (MOC)</b>	<i>"...giving priority to messages and educational programs on mass media..."</i>

The specific roles of given different ministry office for reduction of maternal and newborn mortality and morbidity is one of the existing opportunity and ministries strength to implement PCC in the country. This goal is achievable through the effective implementation of the continuum of maternal and child health care, in which PCC is one of the components. The MOE and MOC altogether can lift up the public awareness regarding preconception health and Care. MOE & FMOH can provide pre-service and in-service PCC training to the healthcare providers. FMOH can avail the clinical PCC service to all eligible reproductive-aged clients. The MOFED, MOA, MOWYC, and MOWAD can play their role as indicated in the table above. Thus, this document clearly showed the mutual effort and understanding held by these different minister office. These minister offices may not require playing a different role other than this. Since PCC is one of the elements within the continuum of care required to curb the incidence of APO among the mother, their foetus, and child (Reeve ME 2009).

## 5.9. THE NATIONAL STRATEGIC PLAN FOR PMTCT

This document was functional since 2013 to guide the National PMTCT works up until 2015(FMOH 2013). The plan didn't mention the phrase preconception care. Nevertheless, it is one of the components of PCC.

**Discussion:** The CDC and WHO on their guideline documents identified prevention of HIV as a sub-component of the preconception STI screening and management activities (WHO 2013a, CDC 2006). Nevertheless, the focus of the National PMTCT work mainly focuses on PMTCT activities carried out during the periods of pregnancy, delivery and postnatal periods. This is a guide to preventive work which targets mainly the foetus or child after the conception happened.

**Findings:** The strategic document in its third objective, however, gives recognition about the implication of HIV incidence and unmet need for family planning both on the mother and as well the child. The objective is stated as “...*Provide integrated family planning services to HIV positive women and protect unwanted...*”. *The achievement of this objective in this document compared with the outcome indicators stated in the strategic document. These indicators are*

- “..*Reduce the incidence of HIV in reproductive age group by 50%*”
- “..*Reduce the unmet need for FP to 10% among all women...*”

**Discussion:** The objective and outcome indicators shown above are pieces of evidence that the government of Ethiopia is addressing preconception care issues in regard to HIV and unwanted pregnancy prevention among the reproductive-aged individuals (Lassi ZS et al , 2014b). However, preconception care is not explicitly mentioned in the document. The upcoming strategic document may have the potential to include the PCC issues if the PCC awareness creation work started.

## **5.10. COMPREHENSIVE INTEGRATED NATIONAL PMTCT/MNCH/SRH GUIDELINE & NATIONAL GUIDELINES FOR COMPREHENSIVE HIV PREVENTION, CARE AND TREATMENT**

Comprehensive Integrated National PMTCT/MNCH/SRH Guideline is a drafted document prepared in 2014 (FMOH 2014e). This document tries to solve the critics we made on the National strategic plan for PMTCT document. We found this guideline the only guideline addressing the preconception care by name and mentioning some of the components of the care. This guideline considers PCC as the first part of the continuum of maternal and child health care. The National guidelines for comprehensive HIV prevention care and treatment guideline (FMOH 2014) don't literally state preconception care. The HIV counselling and testing (HCT) identified in this document are elements of the Preconception care. This document gives a clear guidance to Voluntary HIV counselling and testing (VCT) and provider-initiated HCT. These services are provided free of charge. Thus, we can say that this service is one of the components of PCC which is actually a well established.

**Discussion:** The above contents of the preconception care information indicated on the guideline document raise many vital points. Compared a CDC's 'Preconception Care Algorithm for Women Living with HIV' which is an algorithm abstracted from an evidence-based practice guideline (CDC 2013a), it has critical gaps. For instance, PCC practice must be started by asking women's/couple's intention to pregnancy which in this case not mentioned in the document (Henning PA, Burgess CK, Jones H, Norman WV. 2017). Others discussing the importance of controlling viral load before conception, checking the safety of Current medications in pregnancy, and the need to refer for reproductive health evaluation with those want to conceive is not mentioned.

The draft guideline document also raised some important points like the need to maintain best possible health and nutritional status, the need to take folate at least three months prior to pregnancy, consumption of foods rich in iron and use of iodized salt, Prevention of malaria and use of insecticide-treated nets (ITN), management of any illness, and delaying pregnancy until six months of recovery. Nevertheless, some of the

counselling points are not specific. As an example, the document doesn't specify the dose of Folic acid. The other missing counselling points in the document include total abstinence or cessation of substances, alcohol, active tobacco smoke and also avoidance exposure to passive cigarette smoke. In the contrary, other counselling points such as the need to avoid an over-the-counter medicine, the need to provide referrals to support services as needed were not also mentioned in the document. The authors might have intentionally left this considering the HCP might easily understand this point from the general principles used in the practice guidelines.

What the guideline document totally left to discuss is the PCC management issues. One of the missing points in the document is the need to conduct a family history and screening for genetic conditions. Screening client's immunity to Varicella, rubella and Hepatitis A and B is vital. Screening for hemoglobinopathies and assessing client's exposure status to environmental hazards and contaminants. Moreover, checking client's vaccinations status is one of the issues PCC (Nypaver C, Arbour M, Niederegger E 2016). Giving the importance of delaying pregnancy after six months of recovery by itself doesn't grant avoidance of APO. But specifying the indicators optimal health of the women like attaining normal BMI, taking Folic acid for not less than three months, total cessation of the psychoactive substances and tobacco, updating vaccination status along with other indicators of optimal preconception health may help the client to decide on the evidence base (CDC 2006).

#### **5.11. MANAGEMENT PROTOCOL ON SELECTED OBSTETRICS TOPICS**

**Finding and Discussion:** We found two protocols guiding obstetric providers' working in health centres (FMOH 2014) and another previously published protocol to guide obstetric HCPs (FMOH 2010). Both documents directly start from ANC, before considering or discussing the PCC issue. The documents focus is only on those clients with established pregnancy and coming for pregnancy checkups, delivery or postnatal care. In addition, it considers the management issues related to immediate newborn conditions. Even though some elements of interconception care are addressed in the obstetric protocol, it is not described in sufficient extent required to guide the practice. We also found a similar gap in

guideline prepared for safe abortion care in Ethiopia (FMOH 2014). The latter document (FMOH 2010), however, as part of prevention of mother to child transmission of HIV (PMTCT) gives some explanation about PCC. This was discussed in the previous PMTCT section.

Obstetric care providers are at the forefront to practice PCC particularly Interconception care and also create PCC awareness as part of their discharge planning practice. Above all, the absence separate guidelines on PCC and ICC in these national protocols may restrain obstetric care providers to play their role. As preconception care is one of the maternal health care component, obstetric provider's needs to play their role to the level of their practice.

#### **5.12. NATIONAL EXPANDED PROGRAM ON IMMUNIZATION IMPLEMENTATION GUIDELINE**

**Finding and Discussion:** One of the core components of PCC is the prevention of APOs through immunization. The women or couples contemplating pregnancy are advised to update their status before conception. Some of the recommended vaccine of PCC includes rubella, hepatitis B, and Tetanus (Coonrod DV, Jack BW, Boggess K.A., Long R, Conry JA., Cox SN, Cefalo R, Hunter KD, Pizzica A, Dunlop AL 2008, Farahi N, Zolotor A 2013). The national vaccine presented to all women in Ethiopia is only tetanus vaccine. The document showed that there are 10 types of vaccines given to the infant and TT vaccine is the only vaccine given for all reproductive-aged women for free. As the successive TT vaccine coverage report from the national survey denoted, there is low coverage of the vaccine. Most women taking the vaccine are getting it while coming for ANC follow-up and usually didn't finish the full course of the vaccine (EDHS 2000, EDHS 2005, EDHS 2012, and EDHS 2016).

Tetanus toxoid injections or TT vaccines are important in reducing one of the leading causes of neonatal mortality due to neonatal tetanus (Lassi ZS, Imam AM, Dean SV, Bhutta ZA 2014a, Coonrod DV et al 2008, Lassi ZS, Majeed A, Rashid S, Yakoob MY, Bhutta ZA 2013). Since most of the deliveries in Ethiopia are taking place at home (EDHS

2016), further strategies for full immunization of TT needs to be designed. The hepatitis B vaccine is not currently given as part of free EPI service. But some private health facilities are providing service with a price ranging from 500-1500 birr (Personal communication). This may not be a feasible alternative for most of the citizens. Nevertheless, its availability as an option may help those couples who can afford the service.

### 5.13. POLICY DOCUMENTS ON DIABETES MELLITUS

**Finding and Discussion:** We identified one recently published DM training manual to healthcare providers prepared by the Ethiopian MOE (FMOH 2016) and another Module prepared to Ethiopian health centre team (Abebe, Tassachew et al. 2005). The focus both document is to guide provider's assessment, diagnosis, and management of the established DM and its clinical complications. The occurrence of APO among clients with DM is high (Reece EA 2012, Simeone RM, Devine OJ, Marcinkevage JA, Gilboa SM, Razzaghi H, Bardenheier BH, Sharma AJ, Honein MA 2015). Despite these evidences and existing recommendation to provide PCC to clients with DM, these documents didn't raise the importance of optimum preconception BG monitoring for couples contemplating pregnancy.

This is actually the only documents recommended the importance of conducting HgbA1c level to monitor the effectiveness of BG monitoring (Abebe, Tassachew et al 2005, FMOH 2016). Our previous research, experience and personal communication in selected health facilities of Hawassa showed the practice of monitoring haemoglobin HbA1c level is not existent. The very reasons for the non-availability of the HbA1c test in the area are not yet studied. Medical laboratory professionals who participated in the current qualitative research identified the absence of the diagnostic laboratory equipment as a reason for the lack of the test in the country. The current document (FMOH 2016), as this training document is new; a change in the current practice may be expected. With ought the HbA1c test, the client's fitness to APO risk-free pregnancy cannot be granted (Wahabi HA, Alzeidan RA, Bawazeer GA, Alansari LA, Esmaeil SA 2010, Mahmud M, Mazza D 2010).

Most evidence-based practice guidelines recommend preconception blood glucose monitoring using HbA1c test. The existing guidelines prepared by professional associations the CDC and WHO also emphasize the need for preconception screening and counselling for any women and couples contemplating pregnancy (Wahabi HA, Alzeidan RA, Bawazeer GA, Alansari LA, Esmail SA 2010, Mahmud M, Mazza D 2010). The existing gap we identified in this documents demonstrated the less attention given to women and couples with DM diagnosis. Consideration of the reproductive health effects of DM is vital to address the adverse pregnancy outcomes.

#### 5.14. STANDARD TREATMENT GUIDELINES FOR GENERAL HOSPITAL

**Finding and Discussion:** This is one of the most important documents guiding the clinical practice of providers in Ethiopia. The first part of the document is a guideline for the rational use of drugs in Ethiopia. The existing evidence-based PCC guidelines do recommend the need to screening the reproductive life plan of couples so that the time to anticipated consumption can be ruled out. Such screening can help preventing APO by prescribing safe medication, substituting existing medications with safer one and also delaying the conception till the course of medication completed (Dunlop AL, Gardiner PM, Shellhaas CS, Menard MK., Mcdiarmid MA 2008, Henderson E, Mackillop L 2011). The guideline document's rational drug use issues are for mentioned for already established pregnancies and also periods of breastfeeding. This, therefore, is a critical gap requiring the attention of the FMACA and all other concerned organization. Making providers aware of the preconception rational drug use consideration in such kind of influential document can effectively guide HCPs to prescribe, dispense or substitute safe drugs for a women contemplating pregnancy. This way, all HCPs can practice APO prevention.

This guideline document guide clinical practitioners to consider the existence of established pregnancy to modify the case management and avoid harm to the foetus and the mother. Non-pregnant women diagnosed with conditions such as DM, cardiovascular disorders, asthma, depression and etc may have plan to conceive soon or they may be already on trial. The harm to the foetus secondary to the management may occur before the women know they are pregnant. People with chronic diseases needs to be informed the danger of

unplanned pregnancy (Dunlop AL, Gardiner PM, Shellhaas CS, Menard MK, Mcdiarmid MA 2008, Henderson E, Mackillop L 2011) This guideline document includes almost all topics including the gynaecological and obstetric case management. Nevertheless it failed to mention the topic and the contents preconception care that guides providers practice.

The first idea regarding PCC is the one stated in relation to the management of pregnant women with cardiac diseases. It says a patient with the cardiac disease in pregnancy can be benefited from preconception counselling. The other point mentioned in this document is the one raised in relation to '*diabetes mellitus complicating pregnancy.*' It is stated as follows

*“Women with pre-gestational diabetes need to have preconception counselling to achieve good glycemic control at the time of conception and organogenesis to avoid congenital abnormality”*

Both points are raised as part of the management of complications of pregnancy but not as specific preconception care management given for non-pregnant women with DM and cardiac diseases. The way how to carry out the glycemic control among pre-gestational DM is not clearly mentioned.

This guideline for the syndromic management of STIs in this document promotes the screening of STIs from every sexually active client visiting the healthcare providers in the country. This is a good practice and preconception consideration. The guidelines for PMTCT work indicated in the document is a component PCC. The RH isoimmunisation prevention work indicated in the document is crucial interconception care preventing APO in the individual's successive pregnancy Johnson (K.A, Gee RE 2015, WHO 2013a). We also identified in the document about the recommendation given to physical exercise, prevention from environmental hazards and contaminants, the value of abstaining from substance use alcohol and tobacco, and the value of maintaining normal BMI which are the crosscutting issues and key components of PCC (WHO 2013a, WHO 2013b, CDC 2006). But the way how these recommendations should be practised to fit the



objectives of PCC is not addressed. Incorporation of PCC in the upcoming revised version of this guideline seems appropriate area to effectively integrate PCC in Ethiopia.

#### **5.15. CURRICULUM DOCUMENT'S GUIDING THE PROVIDER'S PRE-SERVICE EDUCATION IN ETHIOPIA**

A total of 92 different types of curriculum documents of the HCPs training were reviewed. The review was done to determine the inclusion of topics regarding PCC. The program curriculum evaluated includes Diploma & B.Sc, Nursing, Diploma, B.Sc. & M.Sc. Midwifery, MD degree, B.Sc. Health officer, Masters of Public health, & health Extension workers.

**Table-12: Review result of the health care provider’s pre-service training curriculum including preconception care as content. 2017 Ethiopia**

Table-J: Health care providers pre-service training curriculum containing Preconception care topic to with explicit		
The specific curriculum topic per the specific professional field	Presence of the Topic in the curriculum HCPs’ document	
	Preconception / Interception care (PCC)	Prepregnancy/ pre-pregnancy care
Curriculum for master of science in clinical midwifery	Not found	Not found
A Curriculum for Masters of Public health	Not found	Not found
Harmonized modular B.Sc. Midwifery curriculum	Not found	Not found
Harmonized Modular B.Sc. Nursing Curriculum	Not found	Not found
Curriculum for Modular New innovative Medicine		
Curriculum for the Doctor of Medicine (undergraduate)	Not found	Not found
Harmonized Modular B.Sc. degree in Public Health	Not found	Not found
Curriculum for B.Sc. in clinical pharmacy program	Not found	Not found
A curriculum for the degree of master in hospital and healthcare administration (MHA)	Not found	Not found
Bachelor of Science (B.Sc.) degree in Anesthesia	Not found	Not found
Emergency & Critical Care Nursing Curriculum (B.Sc.)	Not found	Not found
Nationally Harmonized Modular Curriculum for Medical Radiologic Technology (BSc)	Not found	Not found
National harmonized curriculum modular curriculum of the degree of bachelor of science in psychiatric nursing	Not found	Not found
Curriculum for B.Sc. in Medical Laboratory technology	Not found	Not found
Curriculum for MPH, Specialty in Environmental Health	Not found	Not found
Harmonized B.Sc. in Environmental Health Science	Not found	Not found
Curriculum for B.Sc. Science in clinical optometry	Not found	Not found
Curriculum of Diploma Nursing Program	Not found	Not found
Curriculum of Pharmacy Program	Not found	Not found
Curriculum of Health Extension workers program	Not found	Not found
curriculum for M.Sc. in integrated emergency surgery (obstetrics, gynaecology and general surgery)	Not found	Not found
Curriculum for postgraduate program in internal medicine	Not found	Not found
Curriculum specialty in obstetrics and gynaecology	Found	Not found
Curriculum specialty in general surgery	Not found	Not found

**Discussion:** Our previous study identified a lower level of PCC knowledge score most of the HPs participated in the study also reported for not getting both the pre-service and in-service PCC training (Chapter four). Our evaluation is supportive of this finding in that almost all the curriculum documents we reviewed didn't included the topic preconception care. This is shocking gap requiring urgent correction. The WHO and other studies recommend integration of PCC in HCP's training curriculum (Goodfellow A, Frank J, Mcateer J, Rankin J 2017, WHO 2013a, CDC 2006).

#### **5.16. POLICY DOCUMENTS GUIDING THE HEALTH EXTENSION WORKERS PRACTICE**

The adolescent reproductive health extension package (FMOH 2003) is a document guiding HEW practice in the area of adolescent reproductive Health. The objectives listed in this document are objectives linked to some of the PCC components. These are a provision of information and education to reduce HTP related to RH, prevention of HIV/AIDS among adolescents, prevention of unwanted pregnancy and abortion, and prevention of substance. Even though this package is a very convenient document to raise the issue of preconception health and care, the document doesn't explicitly mention the subject PCC.

The other package titled "Family Planning Extension Package" is another document Reviewed (FMOH 2003). This document is a document guiding the HEW FP practice to the general community. It is similar in its content with the national family planning guideline document (FMOH 2011). One of the rationales mentioned in this document is the prevention of unwanted and unplanned pregnancy which is also the interest of the PCC. Nevertheless, the document doesn't mention the preconception care considerations to those enrolled in the FP care. As noted in both national FP guideline (FMOH 2011) and this document (FMOH 2003), there is missed the opportunity to PCC for those clients enrolled in the FP programs. Delaying pregnancy or spacing alone doesn't assure the avoidance of the occurrence of APOs. But, during this period, the PCC should be given to optimize the women's' health before conception (WHO 2013a).

The maternal and Child health package of the HEWs is one of the most important documents guiding the HEWs practice regarding the continuum of maternal and child care (FMOH 2003). This document in addition to management of child health issues it gives detailed guiding notes on the area of antenatal care, intranatal care and postnatal care. Nevertheless, it misses the issues of PCC and interconception care required to prevent APOs among the mothers, feets, and the child.

The other package is vaccination service for HEW (FMOH 2003). As it is discussed on National Expanded program on immunization implementation guideline (FMOH 2015), it has the same component. The role of health extension workers is vital both in the identification of the target group, vaccination, follow-up and also health education. This, therefore, can be considered as an opportunity fostering the implementation of PCC in the country.

One book titled “*Lecture note on family health for health extension workers*” is a lecture not prepared by the author from Jimma University to serve as recourse for HEWs (Gebremariam 2004). This document seems the first published lecture note documented PCC in the country particularly to HEWs. The document was published by the year 2004. It was prepared through collaboration of the FMOH and Jimma University with the technical and financial support of USAID and the Carter Centre. The lecture note was found containing the topic PCC as a sub-topic of the second unit titled ‘maternal health’. This document, on page 11, clearly shows that PCC is one of the components of maternal health services. As it is described in the document it says

#### **“Preconception Care**

*Definition: Preconception care is a comprehensive care that women need to be healthy getting pregnant.*

#### ***Preconception care includes:***

- *A visit to a healthcare facility (health post) to identify and correct any health problems*
- *Updating immunizations status*
- *Good nutrition education for mother*
- *Vitamin A supplementation including folic acid*

- *Counselling on regular physical activity*
- *Educating on unhealthy substances: alcohol use, cigarette smoking, using drugs*
- *Counselling and testing for HIV/AIDS/STI if at risk”*

**Discussion:** The above short not is the only information found explicitly describing preconception care and which considers PCC as the first care within the continuum of maternal health care services. This makes the document the first and the only document clearly addressed PCC in Ethiopia. Nevertheless, compared to a standard preconception care guidelines (CDC 2006, WHO 2013), the way it defined PCC, and also listed the components of PCC are not well addressed. In addition, the document considers health post visit as a place to handle all the identification and management of preconception risk factors. In actual sense, this may serve as the first level of contact initiation and managing majority of the cases (FMOH 2015). Linking the client to health centres where they found better diagnostic facilities and health care providers will be the preferable place to address most of the PCC services. This document actually showed that most of the components of PCC can be addressed through health education and counselling at the community level by HEW.

#### **5.17. CURRICULUM REVIEW OF OTHER COMMON COURSES GIVEN TO ALL COLLEGE AND UNIVERSITY STUDENTS**

One of the FMOE and FMOH strategic areas to address college and university students with health and health-related information is similar to those elementary and high school students. One of the most commonly used common courses is communicative English course. This course pass different health and health-related issues, however, it doesn't include preconception health topic. Most Ethiopian students who didn't pass the 10 class national exam are going to technical colleges. These students are getting some sort of accident prevention topics.

Currently, in 2017, the course reproductive health was started to be given as a course to all 1<sup>st</sup> year university students. This recently developed course, however, never included PCC. There is no course holding the topic PCC. Currently there was a reproductive health course

Through our visit, we could see the existence of dedicated offices of the college/universities facilitating reproductive health-related services. These were HIV service directorate, Gender office. The HIV service directorate is playing role in HIV/AIDs mainstreaming across the university, substance use prevention work, and condom promotion works. Universities do have their own student clinics and FM radio stations. The existence of these offices can be seen as a strength and additional option to integrate both PCC education and as well services along with the existing RH programs. The gender office will also be supportive in cascading the implementation of PCC to the university community. The presence of university-owned media is also giving tremendous opportunity create awareness to the university community and community members residing within the area of where the broadcasting reaches.

#### **5.18. ASSESSMENT OF MONITORING THE EVALUATION TOOLS: FMOH REGISTRIES**

The monitoring and evaluation documents are vital to health management information systems (HMIS). The HMIS documents in Ethiopia include client's follow-up charts, register documents & reporting formats. Health professionals are expected to register what they are practised. The existence of actual preconception care may be asserted if the health professionals registered what they are practised on the clients' follow-up cars and report it to the concerned party through formal communication means. The regular reports required by the higher level offices grant the continuity of practice and guide the employee and the employer about what they are expected to do. This way, the process will be a reinforcing tool for the accomplishment of the specific healthcare practice.

Our objective while reviewing the existing client's follow-up and register formats prepared by the FMOH is to find the existence of PCC related information. A total of 26 M&E tools were reviewed. Most clinical cases do not have a formal follow-up and register books. We

observed for clinical cases lacking formal register follow-up and register an A-4 size plain paper as writing their clinical assessment diagnosis and treatment notes. They are also devising a non-formal register book to record only the name, medical record number (MRN) and the diagnosis of the client. While conducting the actual M&E formats during our visit to health institution, we could have verified all formats identified on the FMOH clinical guideline and protocols are all there. Nevertheless, we couldn't find a separate M&E tool designed particularly for PCC. However, all the maternal & child health care do have a follow-up, registry books, and reporting formats prepared by the FMOH.

Clinicians may use some of the information documented on formal follow-up cards like. In this particular case, a clinician may find client's pregnancy intention, BMI, nutritional status, substance use status including alcohol cigarette and khat. The lists of the formats are depicted below (Table-13).

**Table- 13: The Federal Ethiopian Ministry of health facility monitoring & evaluation tools reviewed to assess the existence of PCC related information. 2017, Ethiopia**

S.N	Title of the document	Content regarding PCC
1	FMOH: Health centre (HC)/Hospital (HO) referral register	Not included/indicated
2	FMOH: HC/HO OPD abstract register	Not included/indicated
3	FMOH: HC/HO OPD Dx & Rx attendance tally	Not included/indicated
4	FMOH: HC/Clinic/HO PNC register	Not included/indicated
5	FMOH: HC/Clinic/HO ANC register	Not included/indicated
6	FMOH: HC/Clinic/HO ANC tally sheet	Not included/indicated
7	Prevention of cervical cancer in the Federal democratic Republic of Ethiopia Register/Draft	Not included/indicated
8	Prevention of cervical cancer among HIV Positive women in the federal democratic Republic of Ethiopia register/Draft	Not included/indicated
9	Client medical record /history form for cervical cancer prevention crevice	Not included/indicated
10	ESOG: Sexual Violence registration Book	Not included/indicated
11	FMOH: HC/Clinic/HO OPD diagnosis register	Not included/indicated
12	FMOH: HC/Clinic/HO Family planning register	Not included/indicated
13	FMOH: Women's card/for FP/ Intake form/	Not included/indicated
14	FMOH: HC/Clinic/HO Post abortion care register	Not included/indicated
15	FMOH: HC/Clinic/HO growth monitoring(G/M) Register	Not included/indicated
16	FMOH: HC/Clinic/HO Integrated MNCH/PMTCT register	Not included/indicated
17	FMOH: HC/Clinic/HO Comprehensive abortion care register	Not included/indicated
18	FMOH: HC/Clinic/HO Inpatient admission/ Discharge register	Not included/indicated
19	FMOH: HC/HO TB/DOTS register	Not included/indicated
20	FMOH: HC/Clinic/HO VCT register	Not included/indicated
21	FMOH: Integrated Antenatal, Labour, delivery, Newborn, and Postnatal care card	Not included/indicated
22	FMOH: HIV care/ART clinic Intake form A & B	Not included/indicated
23	FMOH: Pre ART register form	Not included/indicated
24	FMOH: ART registry form	Not included/indicated
25	FMOH: National Tuberculosis and Leprosy control program. Tuberculosis referral and transfer form	Not included/indicated
26	FMOH: HIV CARE/ART follow-up Form	Included to some extent
27	Health facility daily STIs syndromic case reporting tally sheet	Not included/indicated

Preconception care is a care requiring a clinical follow-up for at least three months. Unless the HCP noted the baseline clinical status of the client entering into the care, it will be difficult to know the attainment of the preconception care given to an individual client. Besides, a single clinician may not always follow an individual client through the full course PCC. Thus, keeping a track record of client's PCC care on the follow-up and registry format grants all the clinical care team to act on the available meticulously recorded evidence. The formal reporting system to the next level is also a means to measure the impact of the PCC care given at the national level. The drug supplies chain management system also cannot be effective without such M& E a document. The absence of M&E in Ethiopia health care



system, therefore, may be another indication testifying the absence of FMOH led formal & official PCC integration work.

#### **5.19. REVIEW OF STUDENTS CURRICULUM FROM GRADE 1-12**

A student in Ethiopia, based on the current the curriculum prepared by the FMOE, should have to take 28 types of courses starting from grade one to twelve (FMOE 2011). These courses based on the year of student's education further classified into 94 courses (Table-14). One of the roles and responsibility of FMOE, in addition to producing HCPs from its' universities, is an integration of selected health education topic in the student's course (TGE 1993, FMOH and FMOE 2015). Intersectoral collaboration and health education are among the strategies clearly stated on the Ethiopian Health Policy document (TGE 1993). The FMOH and FMOE are working together to pass health information to students. This is done through integration of nationally identified health topics in the student's curriculum (FMOH 2012).

Through our curriculum document review, we identified various health topics integrated into some of the courses. These courses include English, Amharic, biology, Environmental science, art and physical education, social studies, and civic (Table-14). Our review identified number of health and health-related topics within the aforementioned courses. Some of these health topics include family planning, HIV/AIDS, nutrition, substance use prevention, alcohol and tobacco prevention, personal and environmental hygiene, accident prevention, exercise and nutrition, the value of antenatal care institutional delivery and postnatal care, breastfeeding, abortion, harmful traditional practices like female genital mutilation (FGM) and immunization. Of course, some of the topics addressed in the curriculum document are elements of the overall PCC. But we couldn't find topic informing students about preconception health and care.

**Table-14: List of reviewed national course syllabi prepared to for grades 1–12 students of Ethiopia: Policy document review for PCC in Ethiopia. 2017.**

<b>Subject</b>	<b>Course syllabus</b>	<b>Course syllabus</b>	<b>Course syllabus</b>	<b>Course syllabus</b>
<b>Grades 1 - 4</b>				
	<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>	<b>Grade 4</b>
<b>English</b>	English G-1	English G-2	English G-3	English G-4
<b>Mathematics</b>	Mathematics	Mathematics	Mathematics	Mathematics
<b>Environmental Science</b>	Environmental Science	Environmental Science	Environmental Science	Environmental Science
<b>Art and Physical Education</b>	Art and Physical Education	Art and Physical Education	Art and Physical Education	Art and Physical Education
<b>Grades 5 - 8</b>				
	<b>Grade 5</b>	<b>Grade 6</b>	<b>Grade 7</b>	<b>Grade 8</b>
<b>Chemistry</b>			Chemistry G-7	Chemistry G-8
<b>English</b>	English G-5	English G-6	English G-7	English G-8
<b>Mathematics</b>	Mathematics G-5	Mathematics G-6	Mathematics G-7	Mathematics G-5
<b>Physics</b>			Physics G-7	Physics G-8
<b>Social Studies</b>	Social Studies G-5	Social Studies G-6	Social Studies G-7	Social Studies G-8
<b>Art</b>	Art G-5	Art G-6	Art G-7	Art G-8
<b>Biology</b>			Biology G-7	Biology G-8
<b>Civics and Ethical Ed.</b>	Civics & Ethical G-5	Civics & Ethical G-6	Civics & Ethical G-7	Civics & Ethical G-8
<b>Integrated Science</b>	Integrated Sci. G-5	Integrated Sci. G-6		
<b>Music</b>	Music G-5	Music G-6	Music G-7	Music G-8
<b>Physical Education</b>	Physical Educ. G-5	Physical Educ. G-6	Physical Educ. G-7	Physical Educ. G-8
<b>Grades 9 - 12</b>				
	<b>Grade 9</b>	<b>Grade 10</b>	<b>Grade 11-12</b>	<b>Grade 11</b>
<b>Biology</b>	Biology G-9	Biology G-10	Bio-Content 11-12	Biology G-11
<b>Civics</b>	Civics G-9	Civics G-10		Civics G-11
<b>Chemistry</b>	Chemistry G 9	Chemistry G10	Chem-Content 11-12	Chemistry G-11
<b>Economics</b>			Econ- Content 11-12	Eco G-11
<b>English</b>	English G-9	English G-10	Eng-Content G11-12	English G-11
<b>Gen. Business</b>			Bus-Content G11-12	Business G-11
<b>Geography</b>	Geography G-9	Geography G-10		Geography G-11
<b>History</b>	History G-9	History G-10	History Intro. G11-12	History G-11
<b>ICT</b>	ICT G-9	ICT G-10	ICT Intro. G 11-12	ICT G-11
<b>Mathematics</b>	Mathematics G-9	Mathematics G-10	Math Content 11-12	Mathematics G-11
<b>Physics</b>	Physics G-9	Physics G-10		Physics G-11
<b>Physical Educ</b>	Physical Educ G-9	Physical Educ G-10		Physical Educ G-11
<b>Tech. Drawing</b>			TD-Content 11-12	Tech. Drawing G-11

## 5.20. CONCLUSION

Our rigorous and systematic literature search and review ascertained that there is no any nationally published preconception guideline to guide PCC in Ethiopia. The Ethiopian health policy document in its current stance is sufficient to accommodate the integration and implementation of PCC in Ethiopia. The Constitution implicitly gives guarantee for the women and advocates to claim PCC. A few of the national policy documents that we reviewed touches some issue of PCC indirectly and implicitly. Almost all of the policy documents neither identify the phrase 'preconception care' nor identify components of the PCC explicitly and completely. Nonetheless, the term preconception care was identified in three documents one is in a document titled 'comprehensive integrated national PMTCT' and another 'lecture note on family health' prepared to HEWs. The third is on a document titled "standard treatment guidelines for general hospital".

Among some of the components of PCC addressed by this few policy documents include prevention of unwanted pregnancy, prevention of STI's and HIV among all clients attending health institution, PMTCT, family planning and child spacing, nutrition, prevention of environmental hazards and contaminants, physical exercise, prevention of substance alcohol and tobacco, immunization, salt iodization, prevention and management of chronic non-communicable diseases, health education and others are included. These findings show that there are already implemented programs or intervention targeting various programs aims. These interventions can be used in a coordinated way to foster the preconception health of couples. The existence of these services, therefore, is an opportunity to leverage the implementation of PCC in Ethiopia on this on these pre-existing programs.

The findings from this policy document review and the study conducted among health care providers can be taken as evidence to conclude that less attention was given to the implementation of PCC in the country. This might happen as a result of the newness of the subject matter to the LMICS. discontinuation of the WHO's effort to promote the implementation of PCC after the 2012 assembly, the less attention given by universities training health care providers to teach their students in the area.

One of the best-recommended strategies to address the demand side is creating clients awareness on preconception care. Nevertheless, we couldn't find any evidence from the reviewed policy documents including all curriculums prepared to grade 1-12 students of Ethiopia. This can be underlined as possible evidence to the poor PCC awareness noted among the client. This study also identified the absence of PCC in the curriculums of the HCPs pre-service training.

The existing intersectoral collaboration, mutual understanding, and the shared roles and responsibility held by different ministry offices, development partners, civil society organizations, the private sector, training and research institutions towards reducing maternal and newborn mortality and morbidity(OPM 1993, FMOH 2012) is a fertile ground to implementing PCC across the country.

## CHAPTER 6

### GUIDELINE TO ASSIST INTEGRATION OF PRECONCEPTION CARE (PCC) IN ETHIOPIA HEALTH SYSTEM

#### 6.1. INTRODUCTION

The previous consecutive chapters, chapter 4 and 5, give a detailed account of the findings and discussion in regard to the objectives of the study. The Aim of the current study as stated in the introductory chapter is developing of guideline to assist the integration of PCC in Ethiopia health system. The attainment of this aim will serve as the antecedent means to fulfill the purpose of this study, which is reducing the higher incidences of adverse pregnancy outcomes (APOs). According to FDOIP, which is a framework based on Innovation of Diffusion Theory, the implementation (integration) process of an evidence based practice (EVP) in a given health system can be affected by five domain factors Identifying the barriers to the implementation will serve as the first and the fundamental step to solve the problem. The findings of the current study were a finding obtained using the FDOIP. The framework also used to guide the literature review process (Fleuren M et al 2014, Fleuren M et al 2004). The findings of the study and the literature reviewed would, therefore, help the development of the first draft of the guideline. The finalization of the guideline work will be achieved after incorporation of the review comments of the invited expert panels involved in the Delphi study.

#### 6.2. THE NEED TO DEVELOPING THE GUIDELINE

Developing of guidelines without knowing the need of the consumer may be futile. Guideline as defined by the WHO is “....*any document containing recommendations about health interventions, whether these are clinical, public health or policy recommendations. A recommendation provides information about what policy makers, health-care providers or patients should do.....Guidelines are recommendations intended to assist providers and recipients of health care and other stakeholders to make informed decisions*” (WHO 2012a). The WHO guideline emphasises the importance of assessing the real need that is

on the ground. Thus, the rationales to the needs of developing the guidelines that assist PCC integration in Ethiopia health system are briefly discussed.

Assessment of the need for developing of guideline to assist PCC incorporation in the Ethiopian health system is the primary issue to embark on the development process. In the introductory chapter and the literature review section, the magnitude of adverse pregnancy outcomes was discussed both as an international and the national public health problems of Ethiopia. In addition, the drawbacks of those interventions existed to solve the reduction of APOs was also discussed. The value of PCC in filling the identified gap within the spectrum of the continuum of maternal and a child health care service was also plainly remarked. The policy document analysis, as discussed in chapter five, identified the absence of PCC policy that guides the PCC implementation in the country. Moreover, the poor PCC knowledge and the poor PCC practice of HCP's determined by the first phase of the study is one of the objective finding indicating the needs to address the unmet needs of the public health.

The review of the current countries health sector transformation plan (FMOH 2015) clearly indicated the need to the application of evidence-based information to decision-making. It also stated the adoption of innovations to the good of the public health. The top four priority targets, improving the maternal and newborn health are indicated as the 1<sup>st</sup> priority. The 2<sup>nd</sup> priority target is reducing the incidence of HIV. These two priority targets are absolutely the targets of PCC. The HSTP documents clearly explain that the targets are ambitious but claim that it will be attainable through the application of evidence-based innovative practices and other strategies listed in the document. Thus developing the current guideline is in line with the current need of the FMOH, not only the public health need. (HSTP 2015-2020)

### **6.3. PRINCIPLES OF GUIDELINE DEVELOPMENT**

The WHO handbook for the guideline development (WHO 2012a) indicates two guiding principles to the process of guideline development. These are

- *“Recommendations are based on a comprehensive and objective assessment of the available evidence”.*
- *“The process used to develop the recommendations is clear. That is, the reader will be able to see how a recommendation has been developed, by whom, and on what basis.”*

### **6.4. OBJECTIVES**

#### **6.4.1. Main objective**

- To develop a guideline to assist the incorporation of PCC in the Ethiopia health system

#### **6.4.2. Specific objectives**

- To draft the 1<sup>st</sup> version of the guideline based on the findings of the current studies and reviewed literature.
- Producing final consensual and validated guideline that is enriched with reviews of the panel of experts.

### **6.5. FRAME WORKS TO THE GUIDELINE DEVELOPMENT PROCESS**

Decision-making in the healthcare field is directly or indirectly related to human life. Any decision taken by a policy maker, program manager, a clinician and also a client should be made based on the available best evidence. Making a health-related decision on a standard, up-to-date and evidence-based guideline is vital to successful program or treatment outcome (Barends E, Villanueva J, Rousseau DM, Briner RB, Jepsen DM, Houghton E, Ten Have S. 2017). In order to be useful, an evidence-based guideline should be developed on a standardized approach. A standardized guideline development process should be made based on the unbiased and reliable information. Especially it should primarily target the health needs of the public (WHO 2012a).

In order to develop the guideline, the *survey List* proposed by Dickoff et.al (Dickoff J et al , 1968) and *the WHO Guideline (WHO 2012a)* were used as the framework. The survey lists proposed by Dickoff et.al implies essential components to be addressed in the guideline development process. These “*survey lists*” include the “*Procedure*”, “*Dynamics*” “*agent*”, “*Purpose*” or “*Terminus*”, and “*Recipient*”. The WHO’s guideline also shares the same components. Both of the frameworks shared similar guiding principles. The WHO guideline is designed principally to produce international guidelines developed by the WHO itself. Such projects are conducted with the huge financial investments. The current project, however, uses the scientific approaches and principles indicated in the two documents.

## **6.6. APPLYING THE ‘SURVEY LISTS’ TO THE GUIDELINE DEVELOPMENT**

### **6.6.1. ‘Purpose’ or ‘terminus’**

The ‘Purpose’ or ‘terminus’ is the final or the planned and expected result or outcome happening as a result of engagement in a given activity. In the current project, reducing the higher incidence rates of Adverse Pregnancy Outcomes (APOs) through the incorporation of PCC in Ethiopia health system is the purpose of the guideline.

### **6.6.2. Procedure**

Standardized ways of doing something based on a valid and recognized method, well-established facts and with a right or capable person. The procedures ultimately entail the target audience or guide her/him to carry out what should be done, how and in what context (Dikoff et al 1968, Daka KG 2015, Moleki 2008:30). In this study, procedures refer to the evidence-based statements and procedures guiding the agent or the target audience about what should be done to incorporate PCC in Ethiopia health system.

### **6.6.3. ‘Agent’ or ‘target audience’**

As Dickoff et al, the term “Agent” stands for “target audiences”. In the WHO guideline the term ‘Agent’ is identified as “target audiences”. Target audiences or agents are people who possess the knowledge, power and skill of executing the guideline developed (WHO



2012a, Dickoff et al 1968,). The integration work of PCC in the Ethiopian health system is a process requiring policy decision-making and higher level executive authority to cascade the implementation of the policy. The healthcare professional's practice at the facility level is dependent on the existing policies, legislative frameworks and procedures. The capability to act on the strategic barriers as denoted in the FDOIP is totally is a role of the policymakers, program managers and other executives working at the system level (Fleuren M et al 2014, Fleuren M et al 2004 ).

#### **6.6.4. Dynamics**

The term 'Dynamics', is a term denoting those factors favoring or facilitating the performance or accomplishment of desired activity (Dickoff et al 1968:245). The dynamic in the current guideline is therefore defined as those determinants facilitating the incorporation efforts of PCC in Ethiopia health system.

#### **6.6.5. Recipient**

This implies a person, a family, or community who is/are direct receivers of a particular recommendation. Specifically, recipients are individuals who carry out the list of activities recommended by the agent or target audience (Dickoff et al 1968:245). In the current case, recipients are mainly all health care providers capable of implementing or providing PCC to the good of the society. Next, school teachers, college or university professors, journalists, and others also have a vital role in providing health education to the community. Nevertheless, through the indicated 'agents', the ultimate beneficiary of the PCC service are all eligible individuals in the society.

#### **6.6.6. Framework or Context**

The Encarta English dictionary defines context as a "*surrounding conditions: the circumstances or events that form the environment within which something exists or takes place*" (Encarta, 2009). In the current guideline context or 'framework' refers to the boundary or system within which the guidelines are executed. Primarily, the health care system of Ethiopia is the observable context. However, the effectors or 'recipients' of the

guidelines are also found in the ministry of health, the media, and also in the community. Thus, taking the overall Health system of the country is preferable. The context or framework, in this case, is the Ethiopian Health system consists of all organizations, people and actions whose *primary intent* is to promote, restore or maintain health' (Figure-13).

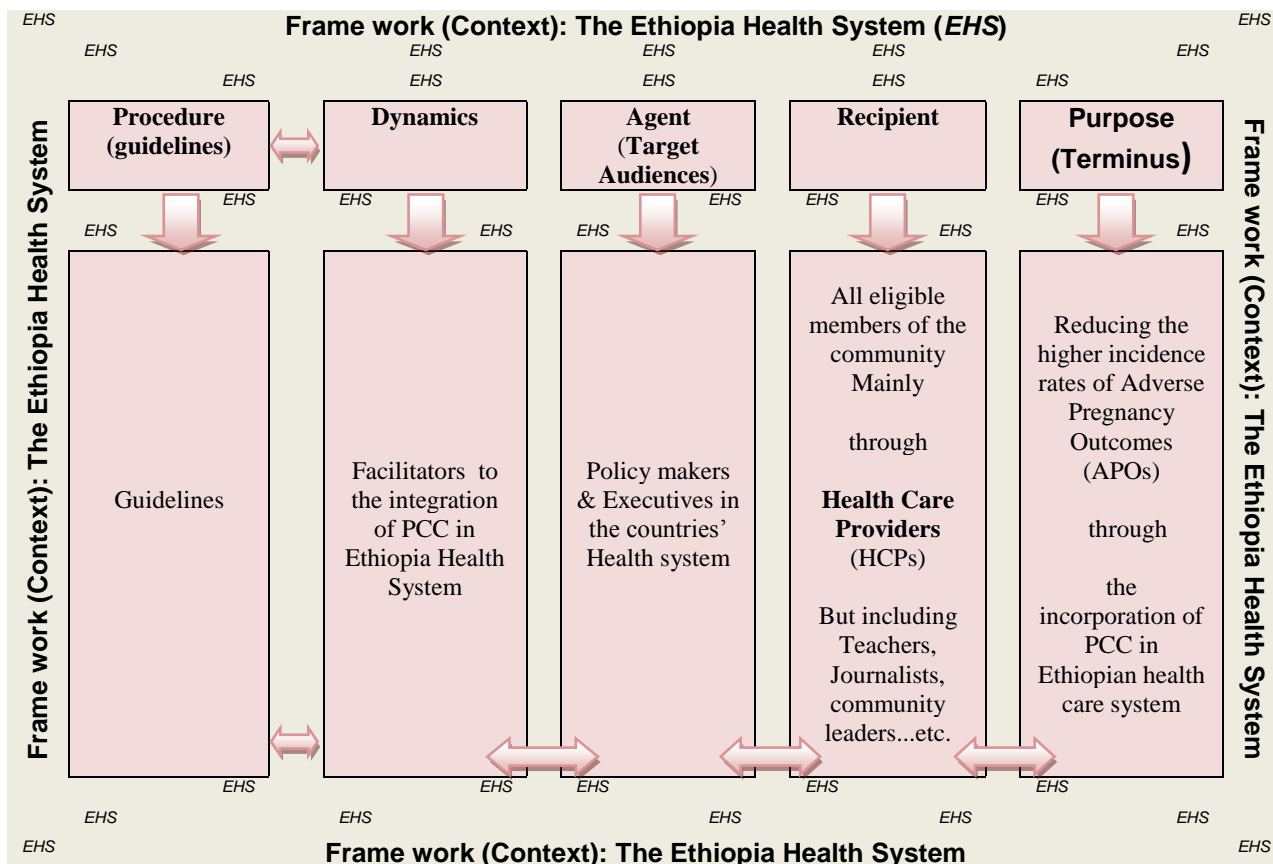


Figure-13: Application of 'Survey List' and 'WHO guideline' (Dickoff et.al, 1968 & WHO 2012) in the development of the guideline to support integration of PCC in Ethiopia Health System

## 6.7. SCOPE THE GUIDELINE:

The WHO guideline discusses the impotence of identifying the target audience and the scope of the study when starting guideline development (WHO 2012a). As stated in the guideline, developing guidelines targeting multiple audiences at a time are impossible. It should be focused and specific. The current guideline, therefore, is not a clinical practice guideline developed to assist HCPs. This is beyond the scope of the current project. In addition, there are a number of PCC clinical practice guidelines. The existing evidence, guidelines, recommendations, and best PCC experiences are the basis to the current

guideline developed (see Table -15). HCP's in Ethiopia can use these guidelines after formally adopted by FMOH. The gap, as already identified with the previous studies and the literature review, is the non-implementation of these guidelines in Ethiopia (Chapter-4 and Chapter-5). To do so, a formal way of introduction or integration PCC in Ethiopia health care system is mandatory

This guideline, therefore, is mainly designed to address system level and technical issues. Since PCC is not yet formally or officially introduced and incorporated in Ethiopia, the emphasis of the guideline is geared towards policy and managerial issues to initiate and sustain the implementation process. The main target audiences of the guidelines are, therefore, policymakers, directorate directors, and program managers or coordinators. Nevertheless, HCP's, stakeholders, the WHO, NGOs and other interested parties can also use it.

NB: The WHO guideline stated that there is no need for conditioning a systematic literature review if there are already reviewed literature and evidence (WHO 2012a). Based on this guidance, the current guideline was not only made based on the original findings of the current studies, but also evidence obtained from the reviewed literature. The level of evidence and the grades of recommendations for the existing PCC guidelines can be read from these references (Table-15) Thus, the reader can refer to the reported findings and some guidelines using the following lists of depicted in the table.

**Table-15: List of references to reported findings, recommendations, and guidelines on PCC considered in the Guideline development process**

1. World Health Organization. 2013a. Meeting to develop a Global consensus on preconception care to reduce maternal and childhood mortality and morbidity: Geneva, Switzerland
2. World Health Organization. 2013b. Preconception care: Maximizing the gains for maternal and child health: WHO: policy brief: Geneva, Switzerland
3. Braspeningx S, Haagdorens M, Blaumeiser B, Jacquemyn Y, Mortier G 2013. Preconceptional care: a systematic review of the current Situation and recommendations for the future. *FVV in ObGyn.* 5 (1): 13-25
4. Erasmus MC. 2012. Preconception Care: A review of the literature: first draft. Department of Obstetrics and Gynecology, Division of Obstetrics and Prenatal Medicine. Rotterdam, Netherlands
5. NGE. Guideline Summary NGC-8022: Preconception care for HIV-infected women. New York (NY): New York State Department of Health; 2010 Jul. 15 p.
6. National Collaborating Centre for Women and Children's Health. 2015. Diabetes in pregnancy: management of diabetes and its complications from preconception to the postnatal period. London (UK): National Institute for Health and Care Excellence (NICE); 2015 p.65 (NICE guideline; no. 3).
7. SOGC clinical practice guideline. 2015. Pre-conception Folic Acid and Multivitamin Supplementation for the Primary and Secondary Prevention of Neural Tube Defects and Other Folic Acid-Sensitive Congenital Anomalies. No. 324, May 2015
8. Activities prior to pregnancy. In: Guidelines for preventive activities in general practice, 8th edition. East Melbourne (Australia): Royal Australian College of General Practitioners; 2012. p. 11-3.
9. Czeizel AE. 2012. Experience of the Hungarian Preconception Service between 1984 and 2010. *European Journal of Obstetrics & Gynecology and Reproductive Biology.* 161, 18–25. [www.elsevier.com/locate/ejogrb](http://www.elsevier.com/locate/ejogrb)
10. CDC. 2006. Recommendations to Improve Preconception Health and Health Care United States: A report of the CDC/ATSDR Preconception Care Work Group and the Select Panel on Preconception Care Morbidity and Mortality Weekly Report. 2006 April 21,2006. Report No.: Contract No.: RR-6.
11. Health team Work. 2009. Guideline for Preconception and Interconception Care. [www.healthteamworks.org](http://www.healthteamworks.org)
12. National Collaborating Centre for Women and Children Health. Diabetes in pregnancy: management of diabetes and its complications from preconception to the postnatal period. London (UK): National Institute for Health and Care Excellence (NICE); 2015 Feb 25. 65 p. (NICE guideline; no. 3).
13. Farahi N, Zolotor A. 2013. Recommendations for preconception counselling and care. *American Family Physician.* 88, 8
14. Mahmud M, Mazza M. 2010. Preconception care of women with diabetes: a review of current guideline recommendations. *BMC Women's Health*, 10:5 <http://www.biomedcentral.com/1472-6874/10/5>

## **6.8. GUIDELINES DEVELOPPED TO ASSIST THE INCORPORATION OF PCC IN THE HEALTH SYSTEM OF ETHIOPIA**

This guideline is developed to assist the incorporation of PCC in Ethiopia. It is a tool designed mainly to desiccation makers and health system managers. It gives guidelines on how to address the system level factors deterring PCC implementation in the country. Next, it guides the way how to enhance the delivery of PCC by the HCPs. Finally, it gives guidance on how to increase the public awareness about preconception health and care. The structure of each guideline is designed based on the frameworks stated above. This includes the purpose of the guideline, a short list of the main findings from the current studies and reviewed literature, the guideline, outcome, rational, and recommended activities and procedures.

The main contents of the guideline include three main parts. These are

1. Guideline to support policy makers, directorates, program managers, and other concerned stakeholders to remove barriers related to potential PCC implementation strategies
2. Guideline to increase the implementation of PCC by HCPs
3. Guideline to improve the preconception health awareness of the public

## **6.9. GUIDELINE TO SUPPORT POLICY MAKERS, DIRECTORATES, PROGRAM MANAGERS, AND OTHER CONCERNED STAKEHOLDERS TO REMOVE POTENTIAL BARRIERS RELATED TO PCC IMPLEMENTATION STRATEGY**

**Purpose:** The main purpose of this guideline is to facilitate a formal integration of PCC in Ethiopian health system. This can be met with the formulation of PCC policy, delegation of a responsible body and structure that assure the delivery of PCC in the country.

**Table-16: List of findings occluding statements from the current studies regarding PCC implementation status and macro and system level determinants.**

1. The countries' supreme legal document, The Constitution of Ethiopia, indicates preconception health as the right of every Ethiopian woman. The Ethiopian policy document also gives sufficient support to accommodate and guide the implementation of PCC in Ethiopia. On the other hand, it seems that the service has never been considered a priority in Ethiopian Health service delivery.
2. There is few, or nearly negligible activity of PCC in the Ethiopia health care system, may be executed under auspices of other program/activities, while it deserves special attention as a separate program/activity.
3. Almost all HCPs involved in the study strongly believe that determinants such as absence of a national PCC policy as one of the primary issue to explain the non-implementation of PCC service in Ethiopia. All agree that the absence of PCC policy in Ethiopia delayed the implementation of PCC in the country.
4. Absence of PCC guideline is the issue most frequently indicated by the participant of the qualitative study. As perceived by these participants, absence of PCC guideline is one of the most important determinants to the non-implementation of PCC. Without the guideline, HCP's may not know what, when, how, and to whom to give PCC
5. The overall assessment of the status of PCC ('innovation') implementation process showed a poor implementation of PCC as a result of inexistent active and targeted programs to the introduction or 'diffusion' of the innovation mainly by the FMOH.
6. The Federal Ministry of Education (FMOE) didn't yet incorporate PCC in the curriculums of the HCPs training. In addition, preventive preconception information is not yet included in the curriculums, such as; common courses of Ethiopian Higher institution and all the curriculums of Grade 1-12 courses. This was asserted by the document review, survey studies, and the qualitative study.
7. The FMOH in collaboration with the organizations owning the mass-media, as perceived by study participants didn't play any significant role in making the public aware of preconception health and PCC.
8. The overall assessment of the PCC 'implementation' process reveals mainly the absence of PCC implementation. Nevertheless, there exists a substandard or poor implementation of PCC by very few HCPs.
9. The finding of the study ascertained the absence of PCC that formally or officially made available to the community and also the absence of HCPs making PCC part of their day to day

clinical practice. Thus, the process of PCC implementation never reached the stage of 'maintenance'.

10. Absence of PCC in the national strategic plan and the lack of planning for PCC at the facility level, as remarked by the study participants, is the other determinant to non-implementation of PCC. HCPs are practicing for services that are planned by the health institution. Unless and other ways planned, the participants stressed and believed, PCC can't be implemented.
11. The GPs and the laboratory technicians were all indicated absence of setup for genetic screening tests and absence of certain testes like HbA1c tests as reasons for not implementing PCC. The current genetic screening tests are conducted only at the capital of Ethiopia. The costs to be paid for these service is also expensive and they are mainly made only for research purpose
12. As perceived by the participants, absence of formally assigned body responsible to the guidance and coordination of PCC within the structure of the FMOH is one of the identified factors explained the absence of PCC implementation in the country.
13. Absence of formally assigned responsible body or directorate to facilitate the provision of PCC affected the policy development and also service provision. This also leads to absence of formal supervision and mentorship to HCPs, absence of formal monitoring and evaluation of PCC services, and also lack of clearly stated strategic plan.
14. As perceived by the participants of the study, the existing absence of HCPs trained on PCC and PCC experts is another contributing factor of non-implementation.

**GUIDELINE 1:** Start the integration of the PCC service in Ethiopia health system by acting on potential strategic barriers negatively affected the PCC implementation process.

**Outcome:**

Formulation of accountable body and structure to direct provision of PCC in the country, formulation of PCC policy, designing strategic plan, establishment of supervisory and mentorship system, establishment of monitoring and evaluation system, developing or adopting PCC guidelines or protocol, integration of PCC in Ethiopian curriculum documents of the HCPs, provision of an in-service training PCC for HCP's who are currently in practice, inclusion of preconception health education in curriculum of G1-G12 and also in selected university common courses, & starting providing uninterrupted PCC education with mass media .

## **RATIONALE:**

Acting on the strategic barriers is the first step that affects the whole process as depicted in the diagram. Policies set by the policy makers are usually and formally expressed in written documents, protocols, guidelines, strategic plans, rules and regulations. The presence of policy in a particular health issue is determinant in the sense that it is persuasive and as well authoritative (Buse K, Mays N, Walt G 2005). The decisions passed by the decision makers, policies, are therefore issues determining the courses of actions and inactions guiding the day to day practice of health managers, HCPs, and also patients. The routine and the day to day practice of HCPs represent the unwritten form of policy (WHO, 2012a). As the WHO stated, the implementation of PCC in LIMICs requires developing of PCC policies by convincing policy makers (WHO 2013). The CDC also emphasized the need to changing the health policy (CDC 2006).

Absence of the PCC document as proved through the policy document review(Chapter 5) is one of the principal and key issue affecting the non-implementation of PCC in Ethiopia. Filling this policy gap will be the first issue demanding the involvement of political decision makers. The other strategic barriers like development of the strategic plan, assignment of responsible and accountable body, and development of the PCC guidelines will eventually follow the PCC policy. There are number of implementation researches reported the absence of guidelines, absence of the strategic plan, absence of formal coordinating or accountable body as a strategic barrier to implementation of many EVPs ( Baatiema L, Aikins DA., Sav A., Mnatzaganian G, Chan CK. & Somerset S. 2017, Mazza, D. Chapman, A. Michie, S. 2013, Fleuren, M., Wiefferink, K., & Paulussen, T. 2004). Standard and model PCC curriculum development and integration of this curriculum in HCPs courses is vital to harmonization and enhancement of the providers PCC knowledge and practice (M'Hamdi HI, Van Voors SF, Pinxten W, Hilhorst MT & Steegers EA. 2017, Johnson K, Atrash H, Johnson A. 2008). Thus, removal of these potential strategic barriers determining the implementation of PCC lays a base to the incorporate PCC in Ethiopia.



## **Recommended activities and procedures for the implementation of the guideline:**

### **1. To remove the potential strategic barriers hindering the implementation processes of PCC in Ethiopian Health system.**

- Conduct briefing meeting which involves all the stakeholders together and form a technical group
- Formulate a technical group to study the way how to implement PCC in Ethiopia. The technical group shall conduct a study and assess alternative ways to where and how to integrate and organize PCC service in the current Ethiopian health care services.

*Example: Inclusion in existing directorate, or separate and independent directorate*

- Prepare a national strategic plan to PCC care (a participatory)
- Formulate or delegate a responsible body with clear organogram. Establish the organizational structure to the provision of PCC starting from the FMOH down to the primary care units.
- The referral systems to various services of PCC across the countries healthcare referral system should be made known to all players.
- The material and financial needs required to implementing PCC need to be considered proactively. It should never, however, delay the implementation of PCC in the country.
- Pilot test the proposed model on how best to provide PCC in Ethiopia. This model should first proposed by the technical group.
- Formulation of PCC Policy (The technical group can draft the PCC policy)
- The established or the responsible directorate should start collaboration with all concerned directorates, minister offices and NGOs. (E.g Ministry of Education Media, Universities, medical colleges...etc)
- Design a monitoring and evaluation system
- Establish a formal supportive structure (Ex. Experts with TOT, mentors...etc.)

- Leverage on the Existing Interventions which are components of the PCC. These include, for example, EPI program, HIV/ART care, PMTCT, Syndromic STI management, family planning, nutritional support, salt iodization programs...etc.
- Insure all facilities especially the primary care units are planning to preconception care
- Prepare or adopt a PCC protocol or Guidelines
- Distribute the PCC guidelines/protocol with all possible menses (e.g. softcopy, website...etc)
- Start the service provision with pilot projects (considering both the urban and rural)
- Expand the service to all over the country (after the pilot testing)
- Assure the existence of model PCC training sites for HCP's training.
- Develop or adopt a harmonized and model PCC curriculum and integrate it in all HCPs training curriculum
- Integrate preventive preconception health information in the curriculums of the elementary, high school, college and university common or selected courses.
- Prepare a text book or teachers guidance to facilitate PCC education
- Increasing the public awareness through mass media, billboard, flyer, school education, etc

#### **6.10. GUIDELINE TO INCREASE THE IMPLEMENTATION OF PCC BY HCPs**

##### **Purpose:**

The main purpose of this guideline is to increase the implementation or provision of PCC by HCPs. Health care providers are the only professionals capable of conducting the clinical assessment, screening, diagnosis and treatment of underlying preconception risk factors. Raising community's awareness, investing on logistics and strategic issues is futile without the actual provision of PCC by HCPs. HCP's are at the fore front of executing the PCC policy and strategic plan in effect. In collaboration with other parties playing role in the promotion of PCC, HCP's will have a key role. With the good performance of HPs, along

with the collective team work, reduction of APO through the optimization of women's preconception health will be achieved

**Table-17: Concluding statements about the determinants of the PCC Implementation process in relation to characteristics of the Health care provider.**

1. The assessment PCC adoption status by the HCP revealed a very promising result. The vast majority of the HCP's showed their willingness to incorporate PCC in their daily practice.
2. The study revealed absence of standard and complete PCC practice by the HCPs. Nearly all HCPs (84.7%) didn't implement or practice preconception care. Only 15.3%, of practitioners, were found poorly practicing PCC a substandard, incidental, and inconsistent PCC care.
3. There are number of PCC elements never ever practiced by the HCP's. These include
  - ✓ Preconception Folic acid supplementation
  - ✓ Preconception counselling issue in regard to environmental hazard and contaminants.
  - ✓ Preconception genetic screening and testing.
  - ✓ preconception HbA1c monitoring for patient with DM
  - ✓ Assessment of History of dental care or checkups.
  - ✓ Cigarette, alcohol and other substance use cessation.
4. There is poor knowledge among the majority of the health care providers. The proportion of HCPs who exhibited an acceptable level or higher PCC knowledge was 31%.
5. HCP's Poor knowledge is one of the key factors increasing their poor preconception care practice. Those HCPs with poor PCC knowledge had the probability of not totally providing or implementing PCC by more than four times than those HCPs practicing PCC at least to some extent (AOR= 4.4, 95% C.I. 2.5-7.6).
6. The odds of not implementing PCC among those professional who didn't regularly screen women's intention to pregnancy was by more than seven fold higher than those HCP's regularly practicing (AOR=7.2 95% C.I. 3.6-14.5).

7. Profession-wise, nurses and midwives altogether had the probability of not totally providing PCC by two times higher than the medical doctors (AOR=2.4, 95% C.I. 1.3 - 4.6).
8. HCPs who possess a perceived expectation that 'PCC should be given by selected HCPs' had odds of not totally practicing PCC than those HCPs who expect PCC should be given by all HCP's (AOR=2.0, 95% C.I. 1.3-3.3).
9. Presence of competing demands, as perceived by some HCPs, were key factors to non-implementation of PCC. Some general practitioners strongly stressed that the existing substandard HCP to patient ratio, the high patient load, the issue of prioritizing other problems outlaying PCC and presence of other services deserving priority than PCC were all factors that limit the HCPs not to practice or implement PCC.
10. Almost all HCPs explain that they don't have support system to guide them practice PCC and they don't have means to practice PCC

## **GUIDELINE 2: INCREASE IMPLEMENTATION OF PCC BY HCPs**

### **OUTCOME:**

Number of clients taking PCC service, Increasing early Antenatal service uptake, Proportion of Planned pregnancy, Increased HCP knowledge, Increased community awareness on preconception health, Increased TT vaccination, proportion of preconception folic acid supplementation, preconception HIV test & STI screening, increased number of women with chronic diseases attending PCC, frequent broad casting of PCC and etc.

### **RATIONALE:**

The CDC and WHO recommends the need to providing preventive preconception care services. The CDC recommended that preventive visits should be conducted “...As a part of primary care visits, provide risk assessment and counseling to all women of childbearing age to reduce risks related to the adverse outcomes of pregnancy...” Thus all HCPs working at the primary care are at the forefront of implementing PCC. The recommendations to the prevention of APOs also include the need to providing interconception care, and PCC to identification and management of those women with underlying chronic diseases (CDC 2006, WHO 2013). A recent study conducted in Netherland emphasizes need to “...timely implementing a comprehensive program of PCC...” and recommended the need to increasing the HCP’s knowledge to enhance the provision of PCC (M'Hamdi HI etal 2017).

Unless the providers provide the recommended PCC, the consumers never get the PCC service. Targeting the determinants stated such as improving the providers knowledge on PCC, inclusion of RLP screening questions on clients, addressing the issues related to the competing demands challenging HCPs, and assignment of responsible and accountable body to support the providers practice can increase the providers practice.

## **Recommended activities and procedures for the implementation of the guideline**

### **1. Train the HCP on PCC**

- Provide in-service training
- Prepare an in-service PCC training curriculum for all HCPs training.
- Prepare both the trainers and participant's PCC training manual
- Prepare suitable areas for staff and students practical training of PCC
- Identify and recognize an expert to counsel the HCPs on PCC
- Make sure the training is an ongoing training

### **2. Support the continuation of the implementation process by HCP**

- Support the implementation of PCC with institutional policy and procedural document
- Arrange needed materials facilities to PCC implementation
- Assigning a supportive supervision or mentorship
- Implement the established PCC monitoring and evaluation system
- Promote the availability of the service to the community
- Arrange a clear referral system to PCC
- Prepare a focal person responsible to coordinate the service at the health institution level
- Establish effective drug supplies management system to insure service provision

### **3. Provide PCC guideline or protocol**

- Avail the guideline of PCC to all HCPs
- Make sure the guideline/protocol is accessible and at the desk top of the clinicians and libraries of the Health care organization
- Make sure that the PCC guideline is up to date
- Introduce the websites and resource centers from which the staffs may get softcopies and other related information
- Avail a laminated copy of the guidelines to all HCPs

## **6.11. GUIDELINE TO IMPROVE THE PRECONCEPTION HEALTH AWARENESS OF THE PUBLIC**

### **PURPOSE:**

The main purpose of this guideline is to increase the uptake of PCC service by the community.

**Table-18: The current study findings with regard to the determinants of PCC Implementation in relation to characteristics of Socio-Political context.**

1. All study participants critically identify the lack of public awareness about preconception health and care as the most important determinant to not implementing PCC.
2. The reason for the existing poor public awareness, as rationalized by the study participant, is linked to absence of public information broadcasting by the mass media and also facility level health education.
3. Almost all the study participants mentioned the poor public awareness on PCC as a factor that caused clients not to seek the care. The community doesn't ask the PCC as a result the HCP's don't provide it.
4. The study participants tried to explain the absence of active PCC education at the public health institutions and by the mass-medias as a factor leading to the non-implementation of PCC.
5. The existing higher prevalence of unplanned pregnancy is one of the perceived factors contributing to late attendance of the woman to ANC giving no option to the provider practice PCC.
6. Those HCP's working in women's health care, such as midwives and other HCPs working in obstetrics may not have chance to provide PCC.
7. As perceived by the participants, most women may not know the exact time they get pregnant as a result can't come to get PCC ahead of their conception. This, in turn, decrease the chance for the HCP provides the service before conception.
8. As perceived by the study participants, the existing poor socioeconomic status may not push the women to seek PCC. Unless and other ways PCC made free like the other MCH services, the participants believe that PCC may not be available to those who can't pay for it. And the HCPs will continue abstaining from providing the service.

### **GUIDELINE 3: INCREASE THE PUBLIC'S AWARENESS ON PRECONCEPTION HEALTH AND CARE**

#### **OUTCOME:**

Number of clients takes PCC service, increasing early antenatal service, increased proportion of planned pregnancy, increased community awareness on preconception health, increased TT vaccination, proportion of women taking preconception folic acid supplementation, preconception HIV test, and increased number of women with chronic diseases attending PCC and etc.

#### **RATIONALE:**

Increasing the public awareness about preconception health and care is one of the highly recommended steps to increase PCC uptake (WHO 2013, CDC 2006). The CDC recommendation in this regard implies the need to enhancing the 'individual responsibility across the life span' (CDC 2006). Through the mass media and health facility or community level education women and their couples can be encouraged to have good EPL. Telling the availability of the PCC service may also increase their health seeking behaviour. If they are aware of the danger of adverse pregnancy outcome and recognize their potential susceptibility, they may start having a planned pregnancy. The CDCs(2006) recommendation about public awareness states that *"...Increase public awareness of the importance of preconception health behaviors, and increase individuals' use of preconception care services using information and tools appropriate across varying age, literacy, health literacy, and cultural/linguistic contexts..."*



## **Recommended activities and procedures for the implementation of the guideline**

1. Pass the information using the available mass media
  - Broadcasting through radio
  - Broadcasting through television
  - Using the printing media like magazines news papers
  
2. Provide health education by HCP's
  - All HCPs should ask every client about their reproductive plan and then give brief counseling information
  - Using Health Extension workers to teach at community level
  - Using school mini-medias
  - Home visiting
  
3. Prepare and use poster flayer, and patient information sheet.
  - Prepare and post a poster or billboard at convenient location
  - Providing patient information sheet
  - Prepare and avail free flyer at OPDs and waiting areas.
  
4. Using all available innovative ways
  - Use community conversation
  - Use developmental armies and religious institutions
  - Organize or capacitate School clubs, and health clubs at work place
  - Prepare volunteers to share their experiences one to one or publicly

NB: all approaches should include where to get the service?

## 6.12. SUMMARY

Guideline development process is a process requiring a rigorous and systematic approach. Thorough systematic literature reviews of original research articles are vital to bring an evidence base conclusion. It is not merely a single person work rather it requires participation of researchers, experts and decision makers and also other concerned stake holders. Since this is a theses based guideline, the PI was responsible to draft the first version of the guideline. This first draft was presented to review by panels of experts to get their opinion and input for further improvement of the guideline. The second version was the revised guideline based on the incorporation of review comments of the panels of experts. The guideline review by 15 Delphi-panels helped to further develop the guideline in a way that is more acceptable and usable. The version presented in this chapter is the final or 2nd<sup>rd</sup> version of the guideline is shown.

## **CHAPTER 7:**

### **CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS**

#### **INTRODUCTION:**

This study aimed to develop a guideline to incorporate PCC in Ethiopian Health Systems. The Ethiopian health system is a system including all GOs, NGOs, and all individuals exerting their effort with the objectives of preventing disease, promoting health, and restoring health. With systems thinking there are a number of stakeholders who can play their own role in the delivery of overall PCC. The FMOH may be the leading and primarily responsible part of the system. In collaboration with all other components of the system, the FMOH may grant the optimization of the women and their couple's health before conception. An optimized preconception health leads to normal birth outcomes; thereby bring a reduction of the high APOs in the country.

To attain this purpose, we aimed to develop guidelines to assist the incorporation of PCC in Ethiopian health system. The guideline developed in this study was made based on the findings of study conducted at the different phases. Phase one of the study assessed the HCP's knowledge attitude and PCC practice and factors contributing to not practicing PCC. The second phase of the study, assessed the question why the HCP's are not practicing PCC? The third phase was study, the policy analysis, that assessed the extent of inclusion of PCC in the countries health and health related policy documents. The Guideline developed at the final level was made based on the finding of these studies and also other literature reviewed. In addition, it was further enriched by 15 Delphi-panels participated in the guideline development process.

#### **7.1. RESEARCH DESIGN, METHODS, AND FRAMEWORK**

This study employs a mixed method explanatory study design. The FDOIP framework was used in guiding and organizing the results of the study. The quantitative study was a crosssectional study conducted among HCPs. It uses both descriptive and analytical study to determine the level of HCP's PCC practice and Key factors associated with PCC practice. The qualitative study using the FGD and KII, gives a detailed explanation about

why the HCPs were not implementing PCC? The HCPs involved in both study were medical doctors, nurses, midwives, health officers, and health Extension workers. The qualitative study, however, included pharmacists, medical laboratory technicians, environmental health expert, and Nutritionist. The findings from the policy document analysis used to complement and validate the findings from the quantitative and qualitative researchers.

## **7.2. CONCLUSION AND INTERPRETATION**

### **7.1.1. The Preconception('Innovation') Implementation Process**

#### **7.1.1.1. 'Diffusion' of PCC:**

The overall assessment of the status of PCC ('innovation') implementation process showed a poor implementation of PCC as a result of inexistent active and targeted programs to the introduction or 'diffusion' of the innovation mainly by the FMOH. The Federal Ministry of Education is the other organization that failed to include PCC in the curriculums of the HCPs training. The FMOH in collaboration with the organizations owning the mass-media, as perceived by study participants didn't play any significant role in making the public aware of preconception health and PCC.

#### **7.1.1.2. Adoption of PCC Implementation and maintenance of PCC**

The assessment PCC adoption status by the HCP revealed a very promising result. The vast majority of the HCP's showed their willingness to incorporate PCC in their daily practice.

#### **7.1.1.3. The PCC Implementation Status**

The PCC implementation status was mainly measured based on the assessment of the Level of HCP's PCC practice. Out of the total study participants 84.7% (537) were found not totally practicing or implementing PCC. Only 15.3%, of practitioners, were found practising poorly or at a substandard and level. There are no HCP's providing (0%) PCC based on the standard guidelines. There are number of PCC elements never practiced by the HCP's. These include preconception Folic acid supplementation, preconception

counselling issue in regard to environmental hazard and contaminants, preconception genetic screening and testing, preconception HbA1c monitoring for patient with DM, Assessment of History of dental care or checkups, assessment of History of dental care or checkups and cigarette, alcohol and other substance use cessation.

#### **7.1.1.4. 'Diffusion' of PCC:**

The overall assessment of the PCC 'implementation' reveals mainly the absence PCC implementation. Nevertheless, there exists a substandard or poor implementation of PCC by very few HCPs. The finding of the study ascertained the absence of PCC that made available to the community and also the absence of HCPs making PCC part of their day to day clinical practice. Thus, the process of PCC implementation never reached the stage of 'maintenance'.

### **7.1.2. Factors determining non-implementation of PCC**

#### **7.1.2.1. *Factors related to characteristics of the Adopting Person (HCP)***

##### **➤ Screening client's intention to pregnancy (RPL)**

The odds of not implementing PCC among those professional who didn't regularly screen women's intention to pregnancy was by more than seven fold higher than those HCP's regularly practicing (AOR=7.2 95% C.I. 3.6-14.5).

##### **➤ Poor PCC Knowledge**

Those HCPs with poor PCC knowledge had the probability of not totally providing or implementing PCC by more than four times than those HCPs practising PCC at least to some extent (AOR= 4.4, 95% C.I. 2.5-7.6). The proportion of HCPs who exhibited an acceptable level or higher PCC knowledge was 31%. About one fourth (26%) of the HCPs were found with medium level of PCC knowledge. The remaining 43% had low or poor PCC knowledge. The proportion of HCPs who correctly responded above 50% of the knowledge assessment items, or HCPs with relative good level of PCC knowledge was

57%. The odds of having good PCC knowledge was high among HCPs working in Hospitals, HCPs using their smart phone to access clinical recourses, among those HCP's ever re PCC guideline prepared by organization outside of Ethiopia, among those who claimed practicing PCC, and among those who earn salary of > 4,000.00 birr.

➤ **The HCP's Profession:**

Nurses and midwives altogether had the probability of not totally providing PCC by two times higher than the medical doctors (AOR=2.4, 95% C.I. 1.3 - 4.6).

➤ **HCP's perceived expectation regarding who should provide PCC?**

Those HCPs who possess a perceived expectation that 'PCC should be given by selected HCPs' had odds of not totally practising PCC than those HCPs who expect PCC should be given by all HCP's (AOR=2.0, 95% C.I. 1.3-3.3).

➤ **Competing Demand**

Some general practitioners strongly stressed that the existing substandard HCP's to patient ratio, the high patient load, the issue of prioritizing other problems outlaying PCC and presence of other services deserving priority than PCC were all factors that limit the HCPs not to practice or implement PCC.

**7.1.2.2. Factors related to characteristics of the PCC (Innovation )strategy**

➤ **Absence of National PCC policy**

Almost all HCPs involved in the study strongly believe that determinants such as absence of national PCC policy as one of the primary issue to explain the absence of provision of PCC service in Ethiopia.

➤ **Absence of PCC guideline**

Absence of PCC guideline is the issue most frequently indicated by the participant of the qualitative study. As perceived by these participants, absence of PCC guideline, providers who didn't have access to PCC guideline may not know what to give, when, how to give and who should give the PCC service.

➤ **Lack of institutional PCC plan**

Absence of PCC in the national strategic plan and the lack of planning for PCC at the facility level is the other determinant remarked by the FGD participants. The HCPs are practicing for services that are planned by the health institution. Unless and other ways planned, PCC can't be implemented

➤ **Lack of laboratory facilities and setup**

The general practitioners and the laboratory technicians were all indicated absence of the setup such as facilities for genetic screening tests and absence of certain testes like HbA1c tests as reasons for not implementing PCC. The current genetic screening tests are conducted only at the capital of Ethiopia. The costs to be paid for these service is also expensive and they are mainly made only for research purpose

➤ **Lack of accountable body**

All health care interventions in the country belong to specifically assigned accountable body. The lack of formally assigned body within the structure of the FMOH is one of the identified factor explained the absence of PCC implementation in the country. The PCC is almost inexistent and doesn't have any owner accountable to execute the provision of the service across the country. In order to provide the PCC, the HCP's should fill sense of accountability and responsibility. Since the HCPs were not given the responsibility to provide PCC they wouldn't implement PCC. The lack of accountable body also caused absence of a dedicated PCC clinic or formally recognized setup to the foster both service provision and also PCC training was mentioned as an essential determinant to not implementing PCC

➤ **Absence of Individual or organization introduced PCC to the country**

As perceived by the general practitioners absence of an organization or individual who took the first initiative to introduce PCC as a cause to the delay of PCC implementation in the country. If any organization, researcher or individual introduced PCC in the country, the HCPs would have started providing PCC. The public would have asked for PCC. These practitioners strongly believed that introduction of PCC would dramatically change the status quo.

### 7.1.2.3. ***Factors related to characteristics of the Organization***

#### ➤ **Absence of trained manpower on PCC:**

As perceived by the participants of the study, the existing absence of trained HCPs on PCC. The absence of a pre-service and in-service training on PCC was mentioned as a cause to the absence of trained PCC providers.

#### ➤ **Absence of known expert in PCC:**

Absence of expert on PCC is an important determinant for non-implementation of PCC by the health care provider. Presences of such experts in the field foster the trainability of the care by other providers and students. They can also give a consultation and mentorship service. Absence of such experts both at the facility and health office level was mentioned as factor contributing to non-implementation of PCC by the HCPs.

### 7.1.2.4. ***Factors related to characteristics socio-political context***

#### ➤ **Poor public awareness about preconception health and PCC**

All study participants critically identify the lack of public awareness about preconception health and care as the most important determinant to not implementing PCC. The reason for the existing poor public awareness, as rationalized by the study participant, is linked to absence of public information broadcasting by the mass media and also facility level health education. Almost all the study participants mentioned the poor public awareness on PCC as a factor that caused clients not to seek the care. The community doesn't ask the PCC as a result the HCP's don't provide it. Thus the study participants tried to explain the absence of active PCC education by the health sectors and the mass Medias as a factor leading the HCPs avoid implementing PCC.

#### ➤ **Unplanned Pregnancy**

The existing higher prevalence of unplanned pregnancy is one of the perceived factors contributing to late attendance of the woman to ANC giving no option to the provider practice PCC. Especially those working in women care, midwives and other HCPs working in obstetrics, may not have chance to provide PCC. As perceived by the participants, most



women may not know the exact time they get pregnant as a result can't come to get PCC ahead of their conception. This, in turn, decrease the chance for the HCP provides the service before conception.

➤ **Poor health seeking behaviour**

The other concern taken as determinant to not practicing PCC is the poor health seeking behaviour in relation to the tradition and beliefs of the client. The existing poor socioeconomic status may not push the women to seek PCC. Unless and other ways PCC made free like the other maternal and child health care services, the participants believe that PCC may not be available to those who can't pay for it. And the providers will continue abstaining from providing the service.

### **7.1.3. Presence of policy document guiding implementation of PCC in Ethiopia**

There is no policy document guiding the implementation of PCC in Ethiopia. There is no PCC guideline or Protocol to guide HCPs practice. Nevertheless, the Ethiopian health policy document in its current stance is sufficient to accommodate the integration and implementation of PCC in Ethiopia. The Constitution also implicitly gives guarantee for the women and advocators to claim PCC.

The nationally harmonized curriculums for training of medical doctors, nurses, midwife, pharmacists, health officers and health extension workers never included PCC. All the curriculums start with antenatal care. The current national curriculums of the elementary courses, high school courses, and college and university common courses never included information about preconception health and care.

Nevertheless, there are documents included elements of PCC. These include, policy documents containing topics such as Family planning, TT immunization, STI/Syndromic management, Nutrition life course action, prevention of non communicable diseases, health information communication. The problem with this document is that they never explicitly target the issue of optimization of women's health before conception.

## **7.2. THE NEED TO IMPLEMENTING PCC**

The need to implement PCC in Ethiopia, as perceived by the study participants is high. All agree it should never be delayed these mach. All stressed that it should be started soon. The introduction should be started with awareness creation and at the same time training of all the HCPs with pre-service and in-service PCC trainings.

## **7.3. WHO SHOULD PROVIDE PCC?**

The majority of survey study participants and all of participants involved in the qualitative study propose that all HCPs can give PCC. The scope of the PCC practice may be different based on the scope of practice, type of training received and facilities available at the health facilities where they are working. Other non health professionals such as school teachers, university or college professors, and journalists can be trained to provide the preconception health information. The type and the provider's specific practice can be determined by the PCC guideline.

## **7.4. WHERE PCC SHOULD BE GIVEN?**

All study participants agreed that PCC should be given in all level of the counties' healthcare system. But it should primarily be given at the first referral system, i.e. at the primary care unites. Those who need further investigation and speciality care can be identified and referred to the next levels. The HEWs can also teach the public at community level. Schools and universities can also be used targeting the adolescents and youths.

## **7.5. CONTRIBUTION OF THE STUDY**

This study was the first in its kind conducted in Ethiopia on PCC. As per the authors best systematic literature search, there is no published and unpublished study conducted to assess the practice of PCC, determinants to non-implementation of PCC in Ethiopia, and also the availability of policy documents in the country. This study therefore lays base line information in determining the levels of HCP's PCC knowledge, attitude, and practice. In addition, it identified key determinants contributing to the non-implementation of PCC in Ethiopia. Finally it also asserted the non-availability of policy documents guiding the

implementation of PCC in the country. These findings therefore, will be used to compare and contrast achievements made by future corrective measures. It also is used compare and contrast findings of similar researches conducted nationally and internationally.

The validated measurement tool used in this study, the HCP's *PCC-KAP-Quest*, can also be used or adopted by other researchers around the world. Therefore, this can help to harmonize and facilitate comparison of finding across all corners of the world.

This study also used the FDOIP framework to assess the determinants to non-implementation of PCC in Ethiopia. There is no reported and published study, as per the authors best literature such, that used this theory based framework to explain determinants to non implementation of PCC both inside and outside of the country. We found the framework was adequate enough in guiding and organizing the study. The inclusion of health systems factors on the factors identified by the DOI theory and theory of planned behaviour makes it fit for implementation research in the health care field.

Most importantly, the guideline developed to assist the incorporation of PCC in Ethiopia is a guideline made based on the findings of these study and the findings obtained from other literatures reviewed. This guideline, therefore, will be a useful document to inform the FMOH, MOH, the Mass Medias, GOs, NGOs, and other professional organizations. It can also inform the WHO to take its own effort in the implementation of PCC in Ethiopia.

The guideline may be tested by small scale pilot projects and then cascaded to the larger scale based on the lessons learned from the pilot projects.

## **7.6. LIMITATION OF THE STUDY**

The following limitations are recognized in this research:

- The level of the HCP's preconception care practice was measured based on questions of the survey tool. The absence of a means to crosschecking their actual performance may not guarantee the accuracy of data. Despite the rigorous techniques used to minimize, like any other survey studies, possibilities of recall and social desirability bias are expected.

- Generalization of the survey or the phase one study findings beyond those HCP's working outside of the PHIs of the study area needs a great deal of caution.
- The purposively selected key informants, FGD participants, and Delphi-panels may be expert and concerned authoritative bodies in regard to implementation of PCC. Nevertheless, these are not representatives. Involvement of other study participants might have offered another possible finding that didn't captured by the current study.

In spite of these limitations, the study used a mixed method, policy document analysis and also opinion of Delphi-panels to validating and complimenting the limitations of each of the separate studies. The study also involved various types of health care providers, experts, university instructors, professors, health service manageress, program managers, experts working in nongovernmental organizations, and policy makers. The information obtained from these multiple key sources along with the findings of the survey and the policy document analysis can give a reach and adequate insight.

## **7.7. RECOMMENDATION**

### **7.7.1. Recommendations for future research**

These theses addressed limited part of the overall researchable areas of PCC. Future researches may be targeted in assessing the prevalence and incidence of an adverse pregnancy outcome such as congenital anomalies and pregnancy loss. Cost effectiveness of folic acid supplementation Vs food fortification. It is also possible to assess the effect of PCC intervention on overall ANC care attendance, median period for 1<sup>st</sup> ANC visit, and magnitude of delivery attendance with perspective studies. In addition, the impact of introducing PCC on overall adverse pregnancy outcomes can be assessed with a longitudinal community trial.

### **7.7.2. Recommendations to incorporate PCC in Ethiopia Health System**

The aim of this project was developing of guideline to assist incorporation of PCC in Ethiopian Health system. The Guideline presented in chapter six was already developed based on the findings obtained from the survey, the qualitative study conducted on

purposively selected key informants, the policy document analysis findings, from the various literature reviewed and the Delphi-panels' opinion. Thus, we highly recommend the FMOH, the FMOE, other concerned organizations and the WHO to consider this guideline while initiating the PCC incorporation process. Please see the detail on chapter seven.

## **7.8. CONCLUDING REMARK**

This study generally involved a quantitative survey, qualitative research, policy document analysis, and Delphi-technique to develop and validate the 1<sup>st</sup> draft guideline. The document analysis phase retrieved a total of 168 health and health related policy documents. The response rate to the survey was 98.0%. Almost all purposively selected and invited study participants and expert panels were all participated in the study.

The overall assessment of the status of PCC ('innovation') implementation process showed poor implementation of PCC as a result of inexistent active diffusion of the innovation mainly by the FMOH, the FMOE, Professional associations, and other concerned parties. The assessment PCC adoption status by the HCP revealed a very promising result. The vast majority of the HCP's showed their willingness to incorporate PCC in their daily practice. The assessment of the PCC 'implementation' reveal the absence of PCC. Nevertheless, there exists a substandard or poor implementation of PCC by very few HCPs. The finding of the study ascertained the absence of PCC that made available to the community and also absence of HCPs making PCC part of their day to day clinical practice. Thus, the process of PCC implementation never reached to the stage of maintenance of the implementation.

The policy document analysis revealed absence of policy documents guiding the full implementation of PCC in the country. The Policy document includes all the constitution health and health related policies of the country. FMOH documents published since 1993 - 2017, HCPs training documents, curriculum from grade 1-12 and university and college common courses. The subsequent studies along with the policy document analysis showed absence of formal PCC implementation process in the country.

The countries' supreme legal document, The Constitution of Ethiopia, indicates preconception health as the right of every Ethiopian woman. The Ethiopian policy

document also gives sufficient support to accommodate and guide the implementation of PCC in Ethiopia. On the other hand, it seems that the service has never been considered a priority in Ethiopian Health service delivery. There is few, or nearly negligible activity of PCC in the Ethiopia health care system, may be executed under auspices of other program/activities, while it deserves special attention as a separate program/activity.

Determinants to non-implementation of PCC include factors related to characteristics of the adopting person (HCP), the PCC (Innovation) strategy, *the organization and the socio-political context*. Factors related to characteristics of the adopting person (HCP) are lack of screening client's intention to pregnancy (RPL), HCP's Poor PCC Knowledge, belonging in Nursing and Midwife professional category, HCP's who perceive selected HCPs should provide PCC. These all were factors found statistically significant. HCP's engagement with competing demand, as perceived by HCPs participated in the qualitative study, was another most important factor determinant for not-implementing of PCC by HCPs.

The qualitative study also further explained the reason why PCC is not being implemented in the country. As perceived by the study participants factors related to characteristics of the PCC (Innovation) strategy such as absence of national PCC policy, absence of PCC guideline, lack of institutional PCC plan, lack of laboratory facilities and setup, lack of accountable body, and absence of Individual or organization introduced PCC to the country were included. The other *factors related to characteristics of the Organization include* absence of trained manpower on PCC and absence of known expert in PCC. In addition the *factors related to characteristics socio-political context* were poor public awareness about preconception health and PCC, unplanned pregnancy, and poor health seeking behavior.

There is a consensus by the survey participants depicting the need to implement PCC soon in the country and curbing the existing higher APOs. The majority of the survey participants and the qualitative and Delphi-panels agreed on the point that PCC should be provided at all levels of the countries health care system by all HCPs guided by The PCC guideline. University professors, school teachers, health extension workers, and journalists can also participate in the dissemination of preconception health information. The guideline developed in this study may be used to incorporate PCC in the Ethiopian health system.

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## Annex-I: English Version Consent and PCC KAP Questionnaire for HCP's

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Thank you for dedicating approximately 5-10 minutes to the completion of this questionnaire. This is a self administered questionnaire designed to reduce adverse pregnancy outcome through the implementation of preconception care. The questions of the questionnaire include questions assessing your knowledge practice and attitude regarding PCC. Your name will not be written on the questionnaire. Whatever information we gate from you will be kept strictly confidential, and will not be shown to any other person or used for any other purpose other than for analysis. You are free to choose to be not included in the study. If you chose to be included, you are also free to stop answering questions at any point if you don't feel like. The findings of this study will help in the management of women who are at risk of experiencing adverse pregnancy outcomes so that to help efforts that aim reducing adverse pregnancy outcome among the mother, hear fetus, and the infant. If in case you change your idea or want to know about your information, you can directly call to the Principal of these research project whose name *Andargachew Kassa (Ass/Professor)* using his phone Number +251-911-338895.

Agree to participate  \_\_\_\_\_  
Don't agree  Signature Date

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\_\_\_\_\_  
Researcher/Research assistants Signature Date  
(Full Names)

**Annex-II: English version survey questionnaire for the healthcare providers (HCPs):  
HCP's-PCC-KAP Questionnaire**

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Thank you for dedicating approximately 5-10 minutes to the completion of this questionnaire. Your honest and accurate responses will contribute towards addressing the high maternal and infant mortality rate in our country. Based on your valued inputs, I will use the information to develop guidelines for better integration of *preconception care (PCC)* in our existing maternal and child health services. You can be confident that your input will remain confidential and will not expose you in any way.

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Definition of preconception care (PCC)

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Preconception care (PCC): What is PCC?

*Preconception care* is the provision of biomedical, behavioral and social health interventions necessary to improve pregnancy outcomes and the overall health of women and her partner.

*Preconception care (PCC)* is among the parts of the continuum of maternal & reproductive health care services given *before conceptions* and *between successive pregnancies* (Inter-conception Care).

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**Preconception Care (PCC) questionnaire: Health workers**

**Instruction:** please read the following questions listed from Qn# 101 to 631 and tick in the box of the best option you choose and write your answer on the space provided to some of the questions.

**PART ONE: Socio-demographic, professional, and work related questions**

101. **Gender** 1.1.  Male 1.2.  Female

102. **Your age in years** \_\_\_\_\_ year

103. **Marital status**

1.  Single 2.  Married 3.  Divorced 4.  Widowed 5.  Living together

104. **Religion** 1.  Orthodox 2.  Protestant 3.  Muslim 4.  Catholic 5.  Other \_\_\_\_\_

105. **Profession:**

1.  Medical Doctor 4.  Public Health Officer  
2.  Nurse 5.  Urban Health Extension Worker  
3.  Midwife 6.  Other \_\_\_\_\_

106. **Year of experience/** \_\_\_\_\_ year

107. **Maximum educational level attended with your health profession**

1.  Diploma 3.  M.Sc. 5.  MD/ Specialty  
2.  B Sc 4.  GP MD 6.  PhD

108. **Practice setting** 1.  Health center 2.  Hospital 3.  Health Post

109. **In which department you are currently working?** \_\_\_\_\_

110. **Monthly salary paid in Ethiopian birr** \_\_\_\_\_ Birr/month

111. **How many patients you manage per day at average?** \_\_\_\_\_ patients/day

**Annex-II: English version survey questionnaire for the healthcare providers (HCPs):  
HCP's-PCC-KAP Questionnaire**

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**PART TWO: Preconception Care (PCC) Knowledge related questions.**

		True	False	Don't know
201.	The eligible clients for preconception care (PCC) include all adolescents and reproductive aged individuals	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
202.	To be effective PCC should start four weeks before conception	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
203.	Periodontal disease is a risk factor for adverse pregnancy outcomes (APO)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
204.	Women with BMI $\leq$ 18.4 planning pregnancy are at risk of developing APO	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
205.	All women of reproductive age should take 0.4 mg (400 mcg) of folic acid daily.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
206.	The recommended routine pre-conceptual laboratory tests include Hgb, Hct, HIV, HBV, HIV, and RPR or VDRL tests	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
207.	Preconception genetic counseling and screening include recommending carrier screening tests for client with sickle cell hemoglobinopathies	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
208.	A clinician providing PCC for clients with diabetes mellitus and chronic hypertension should recommend genetic screening testing	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
209.	Isotretinions, Valproic acid, and Warfarin are medications poses teratogenic effects requiring preconception modification	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
210.	Women with asthma planning pregnancy should avoid taking Salbutamol one month before and after conception	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
211.	Early identification and treatment of diseases like depression, seizure disorder, and phenylketonuria during the preconception period reduce the occurrence of APO	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
212.	The recommended test that guarantee good periconceptual blood sugar control for a woman with pre-gestational diabetes is random blood sugar (RBS) test	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
213.	Except Influenza vaccine, vaccines such as Human Papilloma virus, Rubella, and Varicella are all vaccines contraindicated during pregnancy	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
214.	Recommending regular exercise is an important PCC counseling point. Thus, a women planning pregnancy should aim 30 minutes of moderate exercise 5 days a week.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
215.	Women planning pregnancy should be advised to delay pregnancy until reducing drug, alcohol and tobacco use	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
216.	Avoidance of exposure to environmental hazards or toxin such as ionizing radiation, pesticide, lead, mercury, & pets is a concern for a women with established first trimester pregnancy not for couples planning pregnancy	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
217.	A clinician attending clients with previous caesarian section (C/S) should advise the client to delay the next pregnancy for at least 18 months before next conception	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
218.	Infertility screening and management is not the concern of preconception care	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>

**PART THREE: Preconception Care (PCC) Practice related questions**

**301. Do you ask for the reproductive life plan (RPL) of clients attending to your day to day practice?**

1.  Never
2.  Rarely
3.  Sometimes
4.  Often times
5.  Always

**302. If you at least rarely ask for RPL, whom do you asking? (select all that can apply and add if you have more)**

1.  Adult males ( $\geq$  19 years)
2.  Adolescents and Teens (12-18 Years)
3.  All adult females ( $\geq$  19 years)
4.  Indicate if other \_\_\_\_\_

## Annex-II: English version survey questionnaire for the healthcare providers (HCPs): HCP's-PCC-KAP Questionnaire

**3.1. Do you in your practice, for a client contemplating/planning pregnancy, give *counseling* about issues listed from Qn # 303 - 315?**

	About...	Never	Rarely	Sometimes	Often	Always
303.	Family planning methods	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
304.	Pregnancy spacing	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
305.	Physical exercise	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
306.	Body weight	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
307.	Nutrition	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
308.	Alcohol tobacco, and psychoactive substance use	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
309.	Multivitamin containing Folic acid	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
310.	Importance of maintaining good control of any preexisting medical conditions before conception	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
311.	Importance of screening for STIs/HIV	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
312.	Dangers of prescribed and non prescribed medication use	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
313.	Environmental hazard & toxins	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
314.	Preventive vaccines	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
315.	The importance of inviting partner for preconception counseling, risk screening and management	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

**3.2. Do you in your practice, for a client contemplating, conduct the Following preconception health assessment (Qn # 316- 328) to find preconception health risk factors?**

		Never	Rarely	Sometimes	Often	Always
316.	Demographic information/	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
317.	Past Obstetric & Gynecologic history	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
318.	Past medical and surgical history	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
319.	Genetic history or family pedigree	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
320.	History of dental care/checkup	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
321.	Social history particularly lifestyle behaviors	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
322.	Exposure to environmental toxins and contaminants	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
323.	Pharmacologic history	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
324.	Nutritional assessment particularly BMI	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
325.	Psycho-social assessment	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
326.	Physical examination	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
327.	Employment history	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
328.	Vaccination status	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

**3.3. Do you in your practice, for a client planning pregnancy, carryout the following intervention either yourself or by referring or transferring the client to other department/health facility where the client/s get services indicated in the table below?**

		Never	Rarely	Sometimes	Often	Always
329.	Folic acid supplementation/prescription	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
330.	Substance use cessation. Eg. alcohol, cigarette, or other drug	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
331.	Select safe medication or substitute the existing with safe one	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
332.	Ordering/checking routine preconception lab investigations	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
333.	Diagnosing & managing acute or chronic preconception risk conditions	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
334.	Controlling existing pre-gestational chronic diseases	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
335.	Vaccination of client as per the national protocol	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
336.	Pregnancy confirmation	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
337.	Linking client to other relevant department or organizations	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
338.	Provider initiated HIV testing and counseling (PIHTC)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

## Annex-II: English version survey questionnaire for the healthcare providers (HCPs): HCP's-PCC-KAP Questionnaire

### PART FOUR: HP's levels of Agreement/Disagreement on selected PCC issues:

**Instruction:** Please read each questions listed from Qn # 401- 410) and respond to each questions by mentioning your level of agreement or disagreement by ticking the box of the options indicated as 1 => *Strongly Disagree*, 2=> *Disagree*, 3=> *Neutral or Undecided*, 4 => *Agree*, and 5=> *Strongly disagree*.

		Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
401.	Omission of preconception care leads to an irreversible damage to the fetus	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
402.	PCC provides a greatest opportunity to optimize couples health particularly women's health before conception	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
403.	Providing PCC service to developing countries like Ethiopia is a luxury service	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
404.	A hospital is not the best place to provide PCC	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
405.	In developing country like Ethiopia, the focus of PCC should not be directed to healthy people but for people with infectious disease like HIV and HBV	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
406.	Providing PCC is not within the scope of my professional responsibility and accountability.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
407.	Due to the presence of other competing demands, providing PCC is not the priority intervention I should provide.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
408.	Preconception care should be given for all healthy and sick individuals including those presented with critical and emergency condition.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
409.	All healthcare providers (professionals) can easily integrate the elements of PCC in their daily practice to all eligible individuals whom they are caring	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
410.	Pre conception health is part of the reproductive and human right issue to which the health professional is responsible either for omission or commission of PCC	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

### PART FIVE: Additional factors associated with PCC practice

Have you taken training on or thought about topics listed from (Select all that can apply) Qn # 501 - 509?

		Yes during my stay at university College (Pre-service training)	Yes as an in-service training	Never ever get the training	Don't remember
501.	Reproductive life plan screening & brief counseling	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
502.	the importance of increasing public awareness Preconception health &PCC	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
503.	how to conduct preconception risk assessment	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
504.	how to provide preconception educational & counseling	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
505.	how to manage identified preconception risk factors	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
506.	the elements of interconception care needed to prevent APO	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
507.	About HIV/AIDS Testing and management (E.g. PMTCT, PIHCT,VCT, or ART)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
508.	PCC considerations for clients with other chronic diseases	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
509.	how to provide alcohol or tobacco cessation service	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>

## Annex-II: English version survey questionnaire for the healthcare providers (HCPs): HCP's-PCC-KAP Questionnaire

### PART SIX: Regarding actual & potential access to resources and Hp practicing PCC

		Yes	No	
601.	Do you have access to internet	<input type="checkbox"/> 1	<input type="checkbox"/> 2	If "No" go to Qn# 603
602.	From do you get internet access?  ( Select all that can apply )			
	<input type="checkbox"/> 1. Office or library			
	<input type="checkbox"/> 2 From internet cafe			
	<input type="checkbox"/> 3 From hotel WIFI service			
	<input type="checkbox"/> 4 Mobile phone /CDMA/ internet			
603.	Do you use your smart phone(SP) to share e-resources from others	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3 I Don't have SP
604.	Does your institution have library?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	
605.	Does your institution have policy and procedural document guiding PCC?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3 I Don't know
606.	Did you, so far, get or see any PCC gridline or protocol from any source?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	
607.	Have you ever seen national PCC guideline or protocol prepared by FMOH?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3 I Don't know
608.	Have you seen any HP practicing PCC in your facility?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	
609.	Are you willing to incorporate elements of PCC in your daily practice?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3 Undecided
610.	Do you want training on PCC?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	

**611. Whom do you recommend to provide preconception care (Select all that can apply & add if more)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> All Specialist Doctors    | 5. <input type="checkbox"/> Health Officers          |
| 2. <input type="checkbox"/> All General Practitioners | 6. <input type="checkbox"/> Health Extension workers |
| 3. <input type="checkbox"/> All Nurses                | 7. Others. _____                                     |
| 4. <input type="checkbox"/> All Midwives              |  |

**612. In which facility should preconception care service be given (select all that can apply and add if you suggest other)**

1.  Health center
2.  Hospital
3.  Other. \_\_\_\_\_

**613. If you provide PCC in the past three months, for how many times you provide PCC? \_\_\_ times in the past three months (please write it in number)**

Thank you for Participating in this study!!!

General Information (To be filled by Research Assistant and Supervisors)		
Health Facility Name		Are all pages checked for availability and completeness?
Date the questionnaire was completed	____ / ____ / 2017	Remark by Datatec collector
Data collector name	_____	
Signature	_____	
HP's Department	_____	Remark by Supervisor
Codes/PHI – UCSC(Eg. 00/00/ - 000)	____ / ____ / - _____	
Name of the Supervisor	_____	
Signature	_____	
Date checked by supervisor	____ / ____ / 2017	



## Annex-III: Amharic Version Consent and Questionnaire for Health Providers(HCPs)

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### በመረጃ የተደገፈ የፈቃደኝነት ተሳትፎ ማረጋገጫ ሰነድ

ይህንን ጥናት የምናከሂደው በሃዋሳ ዩኑቨርሲቲ ህክምናና ጤና ሳይንስ ኮሌጅ የምንሰራ ተመራማሪዎች ስንሆን የጥናቱም ርዕስ "በእርግዝና እና ወሊድ ወቅት በእናቱ እና በሚወለደው ጽንሰ/ልጅ/ ላይ የሚከሰቱ የጤና ቀውሶች ለመከላከል የሚሰራውን የቅድመ ጽንሰት ጤና ክብካቤ አገልግሎት ምንያህል እየሰሩ እንደሆነ ለማጤን የሚደረግ ጥናት" ነው። የጥራት ቃለመጠይቁ ከ5 እስከ 10 ደቂቃ ሊፈጅ ይችላል። ጥያቄዎቹ ስለ ቅ/ጽ/ጤ/ክ አገልግሎት ያልዎትን ግንዛቤ የትም ዝግጅት እንዲሁም ምን ያህል እየሰሩ እንደሆነ የሚጠይቁ ናቸው። በዚህ ጥናት በመሳተፍዎ በቀጥታ የሚያገኙት ጥቅም ላይኖር ይችላል ሐኛም ጥናቱ በእናቶች በጽንሰና በልጆች ጤንነት ላይ የሚደርሰውን ችግር በመቀነስ የእናቶችንና የልጆችን ሞት፣ ጭንገፋ፣ አካልጉዳተኝነት፣ እና ሌሎችንም ተያያዝ ችግሮች ለመቅረፍ እየተደረገ ያለውን ጥረት ለመቅረፍ ስለሚረዳ በተዘዋዋሪ እርሶንና ማህበረሰቡን የሚጠቅም ስራ በጥናቱ በመሳተፍዎ እንደሚሰሩ ተስፋ እናደርጋለን። የምናገኘውን መረጃ በሚስጥር እንጠብቃለን። ስምዎ ተመዝግቦ አይያዝም። በጥናቱ ያለመሳተፍ ሙሉ መብትዎ የተጠበቀ ነው። ለመሳተፍ ፈቅደው አንዳንድ መረጃዎችን ላለመስጠት ከፈለጉ መረጃውን ያለመስጠት መብትዎ የከበርልዎታል። ምናልባት መረጃውን ከሰጡ በሁዋላ ስለ ግል መረጃዎ ጉዳይ ወይም ስለጥናቱ ማወቅ ከፈለጉ የ ጥናቱን ዋና ተመራማሪ አንዳርጋቸው ካሳ (ረ/ጥ) በ +251-911-338895 በመወል ወይም በሃዋሳ ዩኑቨርሲቲ ህክምናና ጤና ሳይንስ ኮሌጅ የነርስና ሚዋፈሪ ት/ቤረት በስራቀን በአካል በመምጣት በማግኘት መጠየቅ ይችላሉ።

ለመሳተፍ እስማማለሁ  \_\_\_\_\_

አልሳተፍም  ፊርማ ቀን

---

ተመራማሪው/ የረዳት ተመራማሪው ስም ፊርማ ቀን

**Annex-IV Amharic version PCC-KAP survey questionnaire for the HCPs  
(HP's-PCC-KAP Questionnaire)**

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ይህንን ጥናት የምናካሂደው በሃዋሳ ዩኑቨርሲቲ ህክምናና ጤና ሳይንስ ኮሌጅ የምንሰራ ተመራማሪዎች ስንሆን የጥናቱም ርዕስ "በእርግዝና እና ወሊድ ወቅት በእናቱ እና በሚወለደው ጽንሰ/ልጅ/ ላይ የሚከሰቱ የጤና ቀውሶች ለመከላከል የሚሰራውን የቅድመ ጽንሰት ጤና ክብካቤ አገልግሎት (ቅ/ጽ/ጤ/ክ/አ) ምንጭል እየሰሩ እነደሆነ ለማጠቃለያ የሚደረግ ጥናት" ነው። የ ጽሁፍ ቃለመጠይቁ ከ5 እስከ 10 ደቂቃ ሊፈጅ ይችላል። ጥያቄዎቹ ስለ ቅ/ጽ/ጤ/ክ አገልግሎት ያልወጡትን ግንዛቤ የትም ዝግጅት እንዲሁም ምን ያህል እየሰሩ እንደሆነ የሚጠይቁ ናቸው። በዚህ ጥናት በመሳተፍዎ በቀጥታ የሚያገኙት ጥቅም ላይኖር ይችላል ሆኖም ጥናቱ በእናቶች በጽንሰና በልጆች ጤንነት ላይ የሚደርሰውን ችግር በመቀነስ የእናቶችንና የልጆችን ሞት፣ ጭንገ፣ አካል-ጉዳትን፣ እና ሌሎችንም ተያያዥ ችግሮች ለመቅረፍ እየተደረገ ያለውን ጥረት ለመቅረፍ ስለሚረዳ በተዘዋዋሪ እርሶንና ማህበረሰቡን የሚጠቅም ስራ ነደሚሆን ተስፋ እናደርጋለን። የምናገኘውን መረጃ በሚስጥር እንጠብቃለን። ስምዎ ተመዝግቦ አይያዝም። በጥናቱ ያለመሳተፍ ሙሉ መብትዎ የተጠበቀ ነው። ለመሳተፍ ፈቅደው አንዳንድ መረጃዎችን ላለመስጠት ከፈለጉ መረጃውን ያለመስጠት መብትዎ ይከበርልዎታል። ምናልባት መረጃውን ከሰጡ በሁዋላ ስለ ግል መረጃዎ ጉዳይ ወይም ስለጥናቱ ማወቅ ከፈለጉ የጥናቱን ዋና ተመራማሪ አንዳርጋቸው ካሣ (ረ/ፕ) በ +251-911-338895 በመደወል ወይም በሃዋሳ ዩኑቨርሲቲ ህክምናና ጤና ሳይንስ ኮሌጅ ቢሮ ቁጥር 36 በስራቀን በአካል በመምጣት ማግኘትና መጠየቅ ይችላሉ።

እባክዎ ፈቃደኝነትዎን በፊርማዎ ያረጋግጡል። ፊርማ \_\_\_\_\_

በጥናቱ ለመሳተፍ ስላሳዩት በጎ ፈቃደኝነት አስቀድመን ልባዊ ምስጋናችንን በአክብሮት እንገልጻለን።

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**የቅድመ ጽንሰት/ቅድመ እርግዝና/ ጤና ክብካቤ (Preconception care (PCC) ምንነት/Definition**

የቅድመ ጽንሰት ወይም ቅድመ እርግዝና ክብካቤ በእንግሊዝኛው **Preconception care (PCC)** ተብሎ የሚጠራ ሲሆን **ከእርግዝና ወይም ከመፅነስ በፊት** የሚሰጥ የጤና ክብካቤ አገልግሎት ነው።

ቅድመ ጽንሰት/ **ቅድመ እርግዝና/ ክብካቤ (PCC)** በተለይ ለማርገዝ እቅድ ያላቸውን ሰዎች ለይቶ በማውጣት ሰዎቹ አገልግሎቱን እንዲያገኙ ያደርጋል።

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**ጤና ባለሙያዎች የተዘጋጀ የቅድመ ጽንሰት/ቅድመ እርግዝና አገልግሎት (Preconception Care (PCC) መጠይቅ:**

**መመሪያ:** እባክዎ ከተራቁጥር 1 እስከ መጨረሻ ድረስ የተዘረዘሩትን እያንዳንዱን ጥያቄዎች በጥንቃቄ በማንበብ መልስዎን ከተሰጡት አማራጭ መልሶች በመረጡት የመልስ ሳጥን ውስጥ የራይት ምልክት (tick) በማድረግ እንዲሁም ክፍት ቦታ /ዳሽ/ በተሠጣቸው ላይ መልስዎን በመጻፍ ይግለጹ

**ክፍል አንድ: ከሞያ/ግራምም ደረጃዎ እና ከሞያዎ ስራ ጋር የተያያዙ ጥያቄዎች**

101. ፆታ                                1.  ወንድ                                2.  ሴት
102. አድሜዎ ስንት ነው \_\_\_\_\_ ዓመት
103. የጋብቻ ሁኔታ
  1.  ያላገባ/ች                                2.  ያገባ/ች                                3.  የፈታ/ች                                4.  ባል/ሚስት የሞተበት/ባት                                5.  ያለጋብቻ አብሮ መኖር
104. ሃይማኖት                                1.  ኦርቶዶክስ                                2.  ፕሮቴስታንት                                3.  ሙስሊም                                4.  ካቶሊክ                                5.  ሌላ ካለ ይገለጽ \_\_\_\_\_
105. ሞያ/Profession:
 

1. <input type="checkbox"/> ሜዲካል ዶክተር	4. <input type="checkbox"/> ፐብሊክ ሄልዝ አፊር
2. <input type="checkbox"/> ነርስ	5. <input type="checkbox"/> የጤና ኤክስፕላንት ባለሙያ
3. <input type="checkbox"/> ሚዲሞይት	6. <input type="checkbox"/> ሌላ _____
106. የስራ ልምድ/Year of experience/ \_\_\_\_\_ ዓመት
107. በሞያዎ የደረሱበት ክፍተኛ የት/ም ደረጃ (የተጠናቀቀ)
 

1. <input type="checkbox"/> ዲፕሎማ	3. <input type="checkbox"/> ማስተርስ (M.Sc.)	5. <input type="checkbox"/> ስፔሻሊስት /MD
2. <input type="checkbox"/> ቢኤስሲ (B.Sc.)	4. <input type="checkbox"/> ጂ.ፒ /GP MD	6. <input type="checkbox"/> ፕሎኖ/PhD
108. የሚሰሩበት የጤና ተቋም አይነት                                1.  ጤና ጣቢያ                                2.  ሆስፒታል                                3.  ጤና ኬላ
109. በአሁኑ ወቅት ተመድበው የሚሰሩበት ዲፓርትመንት ወይም ኬዝ ቴም ምንድነው/ምንደባላል ? \_\_\_\_\_
110. የወርሃዊ ደሞዝዎ መጠን በብር \_\_\_\_\_ ብር/ በወር
111. በቀን በአማካኝ ምን ያህል ተገልጋዮችን ያስተናግዳሉ? \_\_\_\_\_ ሰው/በቀን

## Annex-IV Amharic version PCC-KAP survey questionnaire for the HCPs (HP's-PCC-KAP Questionnaire)

### ክፍል ሁለት: በ ቅድመ ጽንሰት ጤና ክብካቤ (PCC) ዙሪያ የተዘጋጁ የ ግንዛቤ ጥያቄዎች

		እውነት True	ሃሰት False	አላውቅ Don't know
201.	የ ቅድመ ጽንሰት ጤና ክብካቤ የሚያቅፋቸው (Eligibles of PCC) እድሜያቸው በፍሬያማ እድሜ (Reproductive age) ክልል ውስጥ ያሉትን ወንድና ሴቶችን ሁሉ ነው	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
202.	የሚፈለገውን ውጤት ለማግኘት ቅድመ ጽንሰት ጤና ክብካቤ መጀመር ያለበት አራት ሳምንት ከመጸነስ በፊት ነው::	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
203.	ከእርግዝና በፊት ያልታከመ Periodontal disease ላልተፈለጉ የእርግዝና ውጤቶች Adverse Pregnancy Outcome (APO) ያጋልጣል::	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
204.	በቅርቡ ለማርገዝ ያቀደች የ BMI ልኬቷ 19.5 የሆነ ሴት ላልተፈለገ የእርግዝና ውጤት (APO) የተጋለጠች ናት: ስለሆነም ቢያንስ 20.0 እስከትሆን መጠበቅ ይኖርባታል::	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
205.	በፍሬያማ እድሜ (Reproductive age) ክልል ውስጥ ያሉ ሴቶች ሁሉ በየቀኑ 0.4 ሚ.ግ folic acid ታብሌት መውሰድ አለባቸው	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
206.	የ ቅድመ ጽንሰት ክብካቤ አገልግሎት የሚያካትታቸው መደበኛ (routine) ላቦራቶሪ ምርመራዎች Hgb, Hct, HIV, HBV, HIV, እና RPR ወይም VDRL ይጨምራል	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
207.	በ ቅድመ ጽንሰት genetic counseling እና screening ስራ ወቅት ሃኪሙ (የጤና ባለሙያው) የ sickle cell hemoglobinopathies ችግር ያለባት ሰው ካገኘ carrier screening tests ማድረግ ጠቃሚ መሆኑን ሲነግራት ይገባል	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
208.	የ ቅድመ ጽንሰት ክብካቤ አገልግሎት የሚሰጥ ባለሙያ የቅድመ እርግዝና የስኳር (DM) ና የደምግፊት (HPN) ላለባቸው ሰዎች አስቀድሞ ህመምን የመቆጣጠር (control) የማድረግ አስፈላጊነትን ሲነግራቸው ይገባል	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
209.	Isotretinions, Valproic acid, እና Warfarin ቴራቶጅኒክ ያላቸው መድሃኒቶች ሲሆኑ እነዚህን መድሃኒቶች የሚወስዱ ና በቅርቡ መጸነስ ለሚፈልጉ ሴቶች የመድሃኒት ለውጥ ሊደረግለቸው ይገባል	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
210.	በ ቅርቡ ለመጸነስ የሚፈልጉ የአስም በሽታ ያለባቸው ሴቶች ከእርግዝናቸው አንድ ወር በፊትና ከጸንሱበት አስከ ሰዓት ወር ጊዜ ድረስ ሳልቡታምል /Salbutamol/ መውሰድ የለባቸውም	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
211.	በ ቅድመ ጽንሰት ክብካቤ አገልግሎት ወቅት አስቀድሞ እንደ depression, seizure disorder, እና phenylketonuria ያሉትን ከመጸነስ በፊት መለየትና ማከም ያልተፈለገ የእርግዝና ውጤት(APO) እንዳይከሰት ይረዳል	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
212.	የ ቅድመ ጽንሰት ወቅት በቀን ሶስቱ ራንደም ብለድ ቩግር ምርመራ (RBS test 3x/day) ማድረግ የ pre-gestational diabetes ታዳሚን የደም ስኳር መጠን በአስተማማኝ ሁኔታ መቆጣጠራችንን የሚያረጋግጥልን ተመራጭ (Gold Standard) የምርመራ አይነት ነው::	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
213.	ያልተፈለገ የእርግዝና ውጤትን(APO) ከመከላከል አኳያ ከ ኢንፈላዌንዛ ከትባት በስተቀር, የሁሉን ፓፒሎማ (Human Papilloma ) ፤ የሩቤላ (Rubella) እና የቫሪሴላ (Varicella ) ቫይረስ ከትባቶችን በእርግዝና ወቅት መሥጠት የተከለከለ (contraindicated) ነው::	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
214.	በቅርቡ የ መጸነስ ሃሳብ ላላቸው ሴቶች ለ 30 ደቂቃ ደቂቃ የሚቆይ እስኪያልብ የሆነ መካከለኛ የአካል እንቅስቃሴ በሳምንት 5 ጊዜ ማድረግ እንዳለባቸው በጤና ባለሙያው ሊነገራቸው ይገባል::	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
215.	አልኮል እና ሲጋራ የሚጠቀሙ በቅርቡ የ መጸነስ እቅድ ያላቸው ሴቶች ከመጸነሳቸው በፊት የሚጠቀሙትን የ አልኮልና የሲጋራ መጠን እንዲቀንሱ ሊነገራቸው ይገባል	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
216.	በ መጀመሪያዎቹ 12 የእርግዝና ሳምንታት እንጂ በቅድመ ጽንሰት ወቅት እንደ ጨረር፣ የአረም ማጥፊያ ፣ ሊድ፣ ሜርኩሪ ፣ ድመት ጋር ከሚደረግ ንክኪ እና ከመሳሰሉ አካባቢያዊ ጠንቀቻ መጠበቅ ያልተፈለገ የእርግዝና ውጤት እንዳይከሰት አይከለከልም	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
217.	በቅርቡ በ C/S የወለደችን እናት በ ቀጣይ ለመውለድ ብትፈልግ ከ ቀድሞው C/S ቢያንስ በ 18 ወራት ዘግይታ ማርገዝ ይኖርባታል	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
218.	የ ኢንፈርቴሊቲ ምርመራ እና ህክምና በቅድመ ጽንሰት ክብካቤ ውስጥ የሚካተት አይደለም	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>

### ክፍል ሦስት: የ ቅድመ ጽንሰት ክብካቤ አገልግሎት ትግበራን በተመለከተ

301. በአለት ተአለት ስራህ/ሽ ወቅት በስነተዋልዶ የእድሜ ክልል ያሉትን ታካሚዎችህን መቼ ልጅ የመውለድ ወይም ለመጸነስ እንደሚያስቡ እቅዳቸውን ትጠይቃለህ/ ትጠይቁያለሽ?
1.  በፍጹም አድርጌ አላውቅም
  2.  አልፎ አልፎ አጠይቃለሁ
  3.  አንድ አንድ አጠይቃለሁ
  4.  ብዙግዜ አጠይቃለሁ
  5.  ሁልጊዜ አጠይቃለሁ
302. በአለት ተአለት ስራህ/ሽ ወቅት የታካሚዎችህን መቼ ልጅ ለመውለድ ወይም ለመጸነስ እንደሚያስቡ እቅዳቸውን የ ምትጠይቅ ከሆነ የትኞቹን ሰዎች ነው የምትጠይቀው ? (ከ አንድ በላይ አማራጭ መስጠት ይቻላል :: ያልተጠቀሰም ካለ በመጻፍ መጨመር ቻላል)
1.  አዋቂ ወንዶችን ( ≥ 19 Years)
  2.  እድሜያቸው ከ 12-18 ያሉ ታዳጊዎችን/ሳሪምሶችን
  3.  አዋቂ ሴቶችን 19-49 years
  4.  ሌላ ካለ ይጠቀስ \_\_\_\_\_

## Annex-IV Amharic version PCC-KAP survey questionnaire for the HCPs (HP's-PCC-KAP Questionnaire)

3.1. በአለት ተአለት ስራህ/ሽ ለማርገዝ ለሚያስቡ/ለሚቀዱ ሰዎች ከ ጥያቄ 303.1 - 315 በተዘረዘሩት ነጥቦች ዙሪያ ምክር ትሰጣህ ?

		በፍጹም Never	አልፎ አልፎ Rarely	አንዳንድ ጊዜ Sometimes	ብዙ ጊዜ Often	ሁልጊዜ/ Always
303.	ስለ ቤተሰብ እቅድ	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
304.	አራርቆ ስለመውለድ	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
305.	የ አካል እንቅስቃሴ	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
306.	ስለ ሰውነት ክብደት	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
307.	ስለ ምግብ (Nutrition)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
308.	ስለ አልኮል፣ ተባኮና ሌሎች አንቃቂ እጾች (Psychoactive Substance use)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
309.	ስለ ፎሊክ አሲድ (Multivitamin containing Folic acid)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
310.	ከመጸነስ በፊት ቀድመው የነበሩ ህመሞችን ወይም አዲስ የተከሰቱ ህመሞችን የማከም የማስተካከልና የመቆጣጠር አስፈላጊነት	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
311.	ስለ ኤች አይቪና (STIs/HIV) ምርመራ ጠቀሜታ	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
312.	በሃኪም ትእዛዝም ሆነ ያለሃኪም ትእዛዝ የሚወሰዱ መድኃኒቶች ስለሚኖራቸው ጠንቅ	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
313.	ስለ አካባቢያዊ ጠንቆች እና መራዦች (Environmental hazard & toxins)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
314.	ስለ መከላከያ ከትባቶች (Preventive Vaccines)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
315.	በቅድመ ጽንሰት ክብካቤ ወቅት የ ትዳር አጋርን ወይም የፍቅር ገደኛን/partner/ የማሳተፍ አስፈላጊነት	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

3.2. በአለት ተአለት ስራህ/ሽ ወቅት በቅርቡ ለማርገዝ ለሚቀዱ ሰዎችን ከ ጥያቄ 316 - 328 በተዘረዘሩት ነጥቦች ዙሪያ የቅድመ ጽንሰት አጋላጭችን /preconception risk factors) ለማግኘት ምርመራ (health assessment) ታደርገለህ/ታደርጊያለሽ ?

	የደንበኛውን.../ የደንበኛውን...	በፍጹም Never	አልፎ አልፎ Rarely	አንዳንድ ጊዜ Sometimes	ብዙ ጊዜ Often	ሁልጊዜ/ Always
316.	ዲሞግራፊያዊ(Demographic) መረጃ/ information/	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
317.	የ ቀድሞ ጋይኒኮሎጂና ኡብስታትሪክ መረጃ /Past Obs & Gyn history/	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
318.	የቀድሞ ሜዲካል/ሰርጂካል/ ታሪክ (Past medical/surgical history)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
319.	ጀኒቲክ ሂስትሪ (Genetic history/Family pedigree)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
320.	የጥርስ ህክምና ክትትል ታሪክ(History of dental care or checkup)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
321.	ማህበራዊ ታሪክና የባህሪ ዳሰሳ (Social history/Lifestyle behaviors)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
322.	ታካሚው በ አካባቢያዊ ጠንቆች እና መራዦች ስላለው ተጋላጭነት	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
323.	የመድኃኒት ተጠቃሚነትና የአጠቃቀምን መረጃ	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
324.	ስለ አመጋገብ ሁኔታ/Nutritional assessment (BMI)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
325.	የማህበራዊና ስነልቦናዊ (Psycho-social ) ምርመራ	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
326.	የአካል ምርመራ (Physical examination)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
327.	የስራና አይነትና የስራ አይነት ሁኔታ መረጃ (Employment history)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
328.	የቀድሞ ክትባት ሁኔታና (Vaccination status)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

3.3. በአለት ተአለት ስራህ/ሽ ወቅት በቅርቡ ለመጸነስ ለሚያስቡ ሰዎች ከ ጥያቄ 329 - 338 የተዘረዘሩትን ስራዎች በራስህም/ሽም በመስራት ይሁን አገልግሎቱን ሊያገኙ ወደሚችሉበት ክፍል ወይም ተቋምና ባለሙያ ጋር በመላክ አገኘውቱን እዲያገኙ ታደርጋለህ/ታደርጊያለሽ ?

		በፍጹም Never	አልፎ አልፎ Rarely	አንዳንድ ጊዜ Sometimes	ብዙ ጊዜ Often	ሁልጊዜ Always
329.	ፎሊክ አሲድ ማዘዝ/ መስጠት (Folic acid prescription)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
330.	ሁብስታንስ መጠቀም እንዲያቆሙ መርዳት/Substance use cessation/ ለምሳሌ.. እንደ አልኮል፣ ሲጋራ...ወዘተ...	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
331.	ጽንሰ የማይገዳ መድኃኒት ማዘዝ ወይም በሌላ በማይገዳ መለወጥ/substitution/	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
332.	መደበኛ (routine) የቅድመ ጽንሰት/ቅድመ አርግዝና ላቦራቶሪ ምርመራ ማሰራት	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
333.	ጽንሰትና የአናቱን ጤነት ሊጎዱ የሚችሉ ቆዩና(chronic) አዲስ የተከሰቱ ( acute) የጤና ችግሮችን መርምሮ መለየትና እና ማከም	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
334.	በቅድመ አርግዝና ወቅት የነበሩ የቆዩ በሽታዎችን ከቀጣዩ አርግዝና በፊት መቆጣጠር	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
335.	ከትባቶችን ከጋራቱ መመሪያ እና ከደንበኛው ሁኔታ አኳያ መከተብ	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
336.	የአርግዝና ማረጋገጫ ምርመራ ማድረግ	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
337.	ደንበኛውን አስፈላጊ ወደሆኑ ቦታዎች/ድርጅቶች ጋር ማገናኘት	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
338.	የ ኤች አይቪ ምርመራ ማድረግ	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

## Annex-IV Amharic version PCC-KAP survey questionnaire for the HCPs (HP's-PCC-KAP Questionnaire)

### ክፍል አራት፡ በተመረጠ የ ቅድመ ጽንሰት ክብካቤ ጉዳዮች ዙሪያ የ ባለሙያዎች የመስማማትና ያለመስማማት ሁኔታ ዳሰሳ

**መመሪያ፡** እባክዎ እያንዳንዱን ከ ቁጥር 401 - 410 ያሉትን ጥያቄዎችን ካነበቡ በሁዋላ በቀረበው ሃሰብ ላይ ምን ያህል እንደሚስማሙና እንደማይስማሙ ከ ጥያቄ ቁጥር 1-5 በተሰጡት አማራጮች ሳጥናቸው ውስጥ ጭረት በማድረግ ይግለጹ፡፡ ( የምላሾቹ አይነቶች 1 □ በጣም አልሰማም፣ 2 □ አልሰማምም ፣ 3 □ አልወሰንኩም ፣ 4 □ እስማማለሁ፣ እና 5 □ በጣም እስማማለሁ ናቸው)

		በጣም አልሰማም Strongly Disagree	አልሰማምም Disagree	አልወሰንኩም/ Undecided	እስማማለሁ/ Agree	በጣም እስማማለሁ/ Strongly Agree
401.	የ ቅድመ ጽንሰት ክብካቤ አለመስጠት/ማጓደል/ ጽንሰት፣ ልጁን፣እናቱን በቀላሉ ሊመለስ ለማይችል የጤና ጠንቅ ወም ጥፋት ሊያጋልጥ ይችላል	1 □	2 □	3 □	4 □	5 □
402.	የ ቅድመ ጽንሰት ጤና ክብካቤ የሴቶችን ጤና የተሻለ ለማድረግ ይረዳል	1 □	2 □	3 □	4 □	5 □
403.	እንደ ኢትዮጵያ ባሉ ድሃ ሃገራት ለሚኖሩ ሰዎች የ ቅድመ ጽንሰት ክብካቤ ለመስጠት ማሰብ ከቅንጦት ይቆጠራል	1 □	2 □	3 □	4 □	5 □
404.	ሆስፒታል የ ቅድመ ጽንሰት ክብካቤ(PCC) ለመስጠት ተመራጭ ቦታ አይደለም	1 □	2 □	3 □	4 □	5 □
405.	እንደ ኢትዮጵያ ባሉ ሃገራት የ ቅድመ ጽንሰት ክብካቤ አትኩሮት ጤናማ ለሆኑ ሰዎች ሳይሆን እንደ HIV እና HBV በመሳሳሉ በሽታ ለተያዙት ብቻ መሆን አለበት	1 □	2 □	3 □	4 □	5 □
406.	የ ቅድመ ጽንሰት ጤና ክብካቤ መስጠት ሞያዊ ሃላፊነቱ አይደለም	1 □	2 □	3 □	4 □	5 □
407.	ካለብኝ ተደራራቢ የሥራ ጫናና በየቀኑ ከማስተናግዳቸው በርከት ያሉ ፈጣን የህክምና እርዳታ ከሚፈልጉ የህመማን ቁጥር አንጻር የ ቅድመ ጽንሰት ጤና ክብካቤ ቅድሚያ የምሰጠው የሥራ ድርሻዬ አይደለም፡፡	1 □	2 □	3 □	4 □	5 □
408.	የ ቅድመ ጽንሰት ጤና ክብካቤ የሚያስፈልጋቸው ጤናማዎቹ ወይም ጤናማ የሚመስሉ ሰዎች ብቻ ሳይሆኑ ፈጣን የህክምና እርዳታ በሚያስፈልገው ህመም ለታመሙ ሰዎችም ጭምር ነው፡፡	1 □	2 □	3 □	4 □	5 □
409.	ሁሉም የጤና ባለሙያዎች የ ቅድመ ጽንሰት ጤና ክብካቤን ለሚያስፈልጋቸው ደንበኞቻቸው በሙሉ ከሚሰሩት ስራ ጋር በቀላሉ አቀናጅተው ሊሰጡ ይችላሉ፡፡	1 □	2 □	3 □	4 □	5 □
410.	የ ቅድመ ጽንሰት ጤና የስነተዋልዶ እና የ ሰብአዊ መብት ጋር የማይገናኙበት ክፍሎች ሲሆኑ ስለዚህም ህመማን ስለ ጉዳዩ ባለማወቅና አገልግሎቱን በማጣት ለሚደርስባቸው ችግር ተጠያቂ የሚሆኑት የጤና ባለሙያዎች ናቸው	1 □	2 □	3 □	4 □	5 □

### ክፍል አምስት፡ ሌሎች ከ ቅድመ ጽንሰት ጤና ክብካቤ ጋር የተያያዙ ጉዳዮች

ከ ጥያቄ ቁጥር 501 - 509 በተዘረዘሩት ርእሶች ዙሪያ ጽ/ምህርት ወይም ስልጠና ወስደሃል/ሻል?

		አዎ በ ኮሌጅ ወይም የተሻሻሉት ቆይታዬ ወቅት	አዎ በሥራ ላይ እያለሁ	አልተማርኩም/ አልሰለጠንኩም	አላስታውቅም
501.	በእለት ተእለት ስራ ወቅት የምታከማቸውን ታካሚዎችን/ ጥንዶችን/ ልጆች የመውሰድ እቅድ መጠየቅና ግልጽና አጭር ምክር ስለመስጠት (Reproductive life plan screening & brief counseling)	1 □	2 □	3 □	4 □
502.	የማህበረሰቡን በ ቅድመ ጽንሰት ጤና እና ክብካቤ ዙሪያ ያለውን ግንዛቤ የማሳደግ ጠቀሜታ	1 □	2 □	3 □	4 □
503.	ለማርገዝ ያቀዱ ሰዎች የፅንሰት እና የእናቱን ጤና ሊጎዳ የሚችል ጠንቅ እንዳላቸው የመለየት ምርመራ (how to conduct preconception risk assessment )	1 □	2 □	3 □	4 □
504.	ስለ የቅድመ ጽንሰት ጤና ት/ም እና ምክር አገልግሎት አሰጣጥ (how to provide preconception educational & counseling)	1 □	2 □	3 □	4 □
505.	በምርመራ ለተለዩ የቅድመ ጽንሰት ችግሮች ህክምና እና የማስተካከያ መንገዶቻቸው (how to manage identified preconception risk factors)	1 □	2 □	3 □	4 □
506.	በእርግዝናዎች መካከል ስለሚደረግ የቅድመ ጽንሰት ክብካቤ አገልግሎት አይነቶች ስለ አገልግሎቱ አሰጣጥ (the elements of interconception care needed to prevent APO)	1 □	2 □	3 □	4 □
507.	ስለ ኤችአይቪ ኤድስ ምርመራ ወይም ህክምና (ለምሳሌ፡ PMTCT, PIHCT፣ VCT, or ART)	1 □	2 □	3 □	4 □
508.	የቆየ ሕመም ላለባቸው ደንበኞች የ ቅድመ ጽንሰት የህክምና እና ክትትል/followup አገልግሎት (PCC considerations for clients with other chronic diseases )	1 □	2 □	3 □	4 □
509.	የአልኮል ወይም የቆየ ስሶት ያለባቸውን ሰዎች እንዲያቆሙ የሚያስችል ህክምና አሰጣጥ (how to provide alcohol or tobacco cessation service )	1 □	2 □	3 □	4 □

**Annex-IV Amharic version PCC-KAP survey questionnaire for the HCPs  
(HP's-PCC-KAP Questionnaire)**

**ክፍል ስድስት፡ የቅድመ ጽንሰት አገልግሎትን ለመስጠት የሚያግዙ ግብዓቶችን እና አገልግሎት አሰጣጥን በተመለከተ**

	አዎ/ Yes	አይ/ No	
601. የ ኢንተርኔት አገልግሎት ትታገኛለህ / ታገኜአለሽ?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	"አይ" ከሆነ ወደ ጥያቄ ቁ 603
602. የኢንተርኔት አገልግሎት የምታገኝ/ኛ ከሆነ ከየት ታገኛለህ / ታገኜአለሽ?  (ከ አንድ በላይ አማራጭ መስጠት/ማክበብ ይቻላል።) <input type="checkbox"/> 1. ከ መሰሪያ ቤት / ላይብራሪ/ <input type="checkbox"/> 2 ከ ኢንተርኔት ካፌ በክፍያ <input type="checkbox"/> 3 ከ ሆቴሎች ዋይፋይ ስርሺስ <input type="checkbox"/> 4 በግል የሞባይል/CDMA/ የኢንተርኔት			
603. በስማርት ፎን(Smart Phone/SP/) ለስራ የሚያግዙ መረጃዎችን ትለቀወጣለህ/ትለቀወጫለሽ?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3 ስማርት ፎን የለኝም
604. መሰሪያቤታችሁ ላይብራሪ አለው ?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	
605. መሰሪያቤታችሁ የቅድመ ጽንሰት አገልግሎት አሰጣጥን የሚመራ የፖሊሲ፣ የፕሮሲደር ዶክመንት፣ ወይም ጋይድላይን አለው ?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3 አላውቅም
606. ከዚህ ቀደም ከየትኛውም ምንጭ የቅድመ ጽንሰት አገልግሎት አሰጣጥ ጋይድላይን ወይም ፕሮቶኮል (PCC gridline or protocol) አይተህ ታውቃለህ ?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	
607. በ ኢትዮጵያ ጤና ጥበቃ ሚኒስቴር (FMOH) የተዘጋጀ የቅድመ ጽንሰት አገልግሎት አሰጣጥ ጋይድላይን ወይም ፕሮቶኮል (PCC gridline or protocol) አይተህ ታውቃለህ ?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3 አላውቅም
608. በመሰሪያቤትህ የቅድመ ጽንሰት አገልግሎት የሚሰጥ ባለሙያ አይተህ ታውቃለህ ?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	
609. የቅድመ ጽንሰት አገልግሎትን እሳት ከእሳት በምትሰጠው የህመም/የደንበኞች/ አገልግሎትህ/ሽ ጋር አቀዳጅተህ/ሽ ለመስጠት ፈቃደኛ ነህ/ሽ ?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3 አልወሰንኩም
610. የ ቅድመ ጽንሰት አገልግሎት ስልጠና (PCC training )እነዲሰጥህ ትፈልጋለህ ?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	

611. የ ቅድመ ጽንሰት ጤና አገልግሎት ሊሰጡ የሚገባቸው እነማን ናቸው? (ከ አንድ በላይ አማራጭ መስጠት/ማክበብ ይቻላል።) ያልተጠቀሰም ካለ በመጻፍ መጨመር ይቻላል)

- |   |  |
|---|--|
| 1. <input type="checkbox"/> ሁሉም ስፔሻሊስት ሃኪሞች | 6. <input type="checkbox"/> ሁሉም የ ከተማ ጤና ኤክስቴንሽን ባለሙያዎች  |
| 2. <input type="checkbox"/> ሁሉም አጠቃላይ ሃኪሞች  | 7. <input type="checkbox"/> ሁሉም የ የገጠር ጤና ኤክስቴንሽን ባለሙያዎች |
| 3. <input type="checkbox"/> ሁሉም ነርሶች        | 8. <input type="checkbox"/> ሌላ ካለ ይጠቀስ _____             |
| 4. <input type="checkbox"/> ሁሉም ሚድዊዎች       |  |
| 5. <input type="checkbox"/> ሁሉም የጤና መኮንኖች   |  |

612. የ ቅድመ ጽንሰት ጤና ክብካቤ አገልግሎት በየትኛው የጤና ድርጅት ሊሰጥ ይገባዋል ብለህ ሃሳብህን/ሽን ትሰጣለህ/ትሰጫለሽ? (ከ አንድ በላይ አማራጭ መስጠት ይቻላል :: ያልተጠቀሰም ካለ በመጻፍ መጨመር ይቻላል)

1.  ጤና ጣቢያ
2.  ሖስፒታል
3.  ሌላ ካለ ይጠቀስ \_\_\_\_\_

613. የ ቅድመ ጽንሰት ጤና አገልግሎት ሰጥተህ/ሽ የምታውቅ/ቁ ከሆነ በባለፈው ሶስት ወራት ውስጥ በ ግምት ለስንት ሰዎች ሰጥተሃል/ሻል? ለ \_\_\_\_\_ ሰዎች

**በጥናቱ ፈቃደኛ ሆነው ስለተሳተፉ ልባዊ ምስጋናዬን እገልጻለሁ!!!**

<b>General Information (To be filled by Research Assistant and Supervisors)</b>		
Health Facility Name		Are all pages checked for availability and completeness?
Date the questionnaire was completed	____ / ____ / 2017	Remark by Datatec collector
Data collector name	_____	
Signature	_____	
HP's Department	_____	Remark by Supervisor
Codes/PHI – UCSC(Eg. 00/00/ - 000)	____ / ____ / - _____	
Name of the Supervisor	_____	
Signature	_____	
Date checked by supervisor	____ / ____ / 2017	

# Annex-V Copy of ethical clearance certificate from UNISA



**UNIVERSITY OF SOUTH AFRICA  
Health Studies Higher Degrees Committee  
College of Human Sciences  
ETHICAL CLEARANCE CERTIFICATE**

**REC-012714-039**

**HSHDC/461/2015**

Date: 25 November 2015

Student No: 5766-602-4

Project Title: Development of guidelines to incorporate preconception care (PCC) in the existing maternal and child care services in urban Ethiopia.

Researcher: Andargachew Kassa Biratu

Degree: D Litt et Phil

Code: DPCHS04

Supervisor: Prof SP Human

Qualification: D Cur

Joint Supervisor: -

**DECISION OF COMMITTEE**

Approved

Conditionally Approved

**Prof L Roets**

**CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE**

**Prof MM Moleki**

**ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES**

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES

**Annex-VI: Copy of ethical clearance certificate from  
Hawassa University, Ethiopia**

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**ሀዋሳ ዩኒቨርሲቲ**  
ህክምናና ጤና ሳይንስ ኮሌጅ  
የምርምር ስነ-ምግባር ገምጋሚ  
ቦርድ



**HAWASSA UNIVERSITY**  
COLLEGE OF MEDICINE AND  
HEALTH SCIENCES  
Institutional Review Board

Ref. No: IRB/068/09

Date: 22/03/2017

Name of Researcher(s): *Andargachew Kassa, Hirut Gemed, Birhanu Jikamo, Fiker Tadesse*

Topic of Proposal: *Magnitude and preconception factors leading to adverse pregnancy outcomes (APO) among women attending public health institutions in Sidama Zone: Client's awareness and provider's preventive preconception care (PCC) practice.*

Dear researcher(s),

The Institutional Review Board (IRB) at the College of Medicine and Health Sciences of Hawassa University has reviewed the aforementioned research protocol with special emphasis on the following points:

1. Are all principles considered?
  - 1.1. Respect for persons: Yes  No
  - 1.2. Beneficence: Yes  No
  - 1.3. Justice: Yes  No
2. Are the objectives of the study ethically achievable? Yes  No
3. Are the proposed research methods ethically sound? Yes  No

Based on the aforementioned ethical assessment, the IRB has:

- A. Approved the proposal for implementation
- B. Conditionally Approved
- C. Not Approved

Yours faithfully,

Ayalew Astatkie (PhD),  
Institutional Review Board Chairperson.





**Annex-VII: Copy of official support letter from Hawassa University**

ሀዋሳ ዩኒቨርሲቲ  
ህክምናና ጤና ሳይንስ ኮሌጅ  
ቺፍ አካዳሚክና ምርምር ዳይሬክተር ጽ/ቤት



Hawassa University  
College of Medicine & Health Sciences  
Chief Academic & Research Director Office

ቁጥር: 11/20/2010  
Ref.No.  
ቀን: 30/08/10  
Date

**ለ ሚመለከተው ሁሉ፤**

**ጉዳይ፡- የድጋፍ ደብዳቤ ስለመስጠት**

የኮሌጃችን ተመራማሪ የሆኑ አቶ አንዳርጋቸው ካሳ (ረዳት ፕሮፌሰር) *"Magnitude & Preconception Factors leading to advevse pregnancy outcomes (APO) among women attending public health institutions: Clients awerenes & provider's preventive preconception car (PPC) practice"* በሚል ርዕስ ጥናታዊ መረጃ ለማሰባሰብ ዝግጅታቸውን አጠናቀው ይገኛሉ።

ስለሆነም የድጋፍ ደብዳቤ እንዲሰጣቸው በቀን 18/08/09 ዓ.ም በጠየቁን ማመልከቻ መሰረት ይህን የድጋፍ ደብዳቤ የሰጠናቸው መሆኑን እየገለጹን በናንተም በኩል አስፈላጊውን ትብብር እንድታደርጉላቸው በአክብሮት እንጠይቃለን።

**ግልጽ**

- ለአቶ አንዳርጋቸው ካሳ  
ህጤት



ከሠላምታ ጋር!

ብርሃን መሸሻ ሂሩት  
ቺፍ አካዳሚክና ምርምር  
ዳይሬክተር

**Annex-VIII Copy of official support letter from UNISA  
Addis Ababa, Akaki Branch**

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05 NOVEMBER, 2015

UNISA-ET/KA/ST/29/05-11-15

**TO WHOM IT MAY CONCERN**

Dears Madam/Sir,

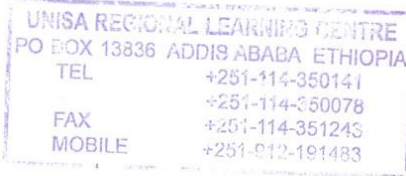
The University of South Africa (UNISA) extends warm greetings. By this letter, we want to certify that Mr. Andargachew Kassa Biratu (student number 57666024) is a PhD student in the Department of Health Studies at the University of South Africa (UNISA). He is developing his doctoral research proposal under the title *"Developing of Guidelines to Incorporate Preconception Care (PCC) in the Existing Maternal & Child Health Care Services in Urban Area of Ethiopia."*

This is therefore to kindly request you to assist the student in anyway you can. We would like to thank you in advance for all the assistance that you would provide to the student.

Sincerely,

A handwritten signature in black ink, appearing to be "Tsigie GebreMeskel Aberra".

Tsigie GebreMeskel Aberra



Deputy Director – Academic and ICT Support

UNISA – ETHIOPIA Centre for Graduate Studies



University of South Africa  
Regional Learning Center  
P.O. Box: 13836, Addis Ababa, Ethiopia  
Telephone: +251 11 435 2244 / +251 11 435 0078  
Facsimile: +251 11 435 1242/ 43/ 44  
Mobile: +251 912 19 1483  
[www.unisa.ac.za](http://www.unisa.ac.za)



## Annex- IX English version consent forms for the Qualitative Study (Consent to FGD and IDI participants)

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### Consent for participants of the Focused Group Discussion (FGD)

#### Dear participant

Thank you for your willingness to participate in this study. This study is conducted to evaluate factors determining the preventive works of an adverse pregnancy outcome through the implementation of preconception care in Ethiopian public health Institutions especially Hawassa city administration. This is focused group discussion. Your selection in this interview is purposive. The discussion may take from 30 -50 minutes. After the discussion we may, if you are willing, to get more clarification or additional information. The discussion will be recorded with a tape recorder. The information you provided will be kept confidential and anonymous. Your name and other identifiable futures will be disclosed to a third party and or will not be published in the report. If needed, it will only be made based on your informed consent. The findings of this study will only be used for academic and research purpose only. To the best of my knowledge there are no actual or potential risks - be they physical, psychological, legal, social or otherwise - that might result from your participation in this research project. Your participation in this study is voluntary, and you have the right to withdraw from the study at any time without adverse consequences to you. Your signature below indicates that you have been fully informed of the nature of this research, and agree voluntarily to participate in this study. If in case required you can have the contact address of the principal investigator to ask any enquiry. **Andargachew Kassa Biratu**, Tell. No +251 911-338895 Hawassa Universities.

I agree to participate

\_\_\_\_\_

\_\_\_\_\_

I don't agree

Signature

Date

---

Researcher/Research assistants

Signature

Date

(Full Names)

## Annex- IX English version consent forms for the Qualitative Study (Consent to FGD and IDI participants)

---

### Consent for participants of the in-depth interview

Dear participant

Thank you for your willingness to participate in this study. This study is conducted to evaluate the preventive works of an adverse pregnancy outcome through the implementation of preconception care in Ethiopian public health Institutions especially Hawassa city administration. This is an individual in-depth interview. Your selection in for this interview is purposive. The interview may take 15-30 minutes. After the interview we may, if you are willing, to get more clarification or additional information. The interview will be recorded with a tape recorder. The information you provided will be kept confidential and anonymous. Your name and other identifiable futures will be disclosed to a third party and or will not be published in the report. If needed, it will only be made based on your informed consent. The findings of this study will only be used for academic and research purpose only. To the best of my knowledge there are no actual or potential risks - be they physical, psychological, legal, social or otherwise - that might result from your participation in this research project. Your participation in this study is voluntary, and you have the right to withdraw from the study at any time without adverse consequences to you. Your signature below indicates that you have been fully informed of the nature of this research, and agree voluntarily to participate in this study. If in case required you can have the contact address of the principal investigator to ask any enquiry. **Andargachew Kassa Biratu**, Tell. No +251 911-338895, Hawassa University

I agree to participate  \_\_\_\_\_

I don't agree  Signature \_\_\_\_\_ Date \_\_\_\_\_

---

\_\_\_\_\_  
Researcher/Research assistants Signature \_\_\_\_\_ Date \_\_\_\_\_

(Full Names)

## Annex-X: English version semi structured questionnaire to the Qualitative study (IDI guide & facilitation to FGD)

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1. How do you express the magnitude of adverse pregnancy outcomes (APOs) in Ethiopia?
2. What are the existing current strategic interventions to reduce APOs in Ethiopia?
3. What do you know about the recommendations of preconception care (PCC)?
  - **NB:** if needed a *brief description about the recommendation of PCC will be provided before passing to the next level. The questions are also asked in the sequentially in the way they appear on this facilitation or interview guide*
4. How do you describe the implementation status of PCC in Ethiopia?
5. How do you explain about the need to implement PCC in Ethiopia?
6. What are the determinants to the non-implementation of PCC by the health care providers in Ethiopia?
7. What should be done to let the HCP's practice or implement PCC in Ethiopia
8. Who should provide PCC?
9. Where PCC should be given?

## Annex-XI: Amharic version consent forms for FGD and IDI

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### የስምምነት ፎርም ለ ለ ጥናት ውይይት ቡድን ተሳታፊዎች (Consent for FGD participants)

ውድ የጥናቱ ተሳታፊ አስቀድሜ በጥናቱ ለመሳተፍ ስላሳዩት ፈቃደኝነት ልባዊ ምስጋናዬን አቀርባለሁ። የዚህ ጥናት አላማ የጥናቱ ተሳታፊዎችን በእርግዝና እና ወሊድ ወቅት በእናቱ እና በሚወለደው ጽንሰ/ልጅ/ ላይ የሚከሰቱ የጤና ቀውሶች ለመከላከል የሚሰራውን የቅድመ ጽንሰት ጤና ክብካቤ አገልግሎት በመንግስት ጤና ተቋማት እንዳይሰራ ምክንያት የሆኑትን ጉዳዮች በዝርዝር ለማጤን የታሰበ ነው። በጥናቱ ላይ የተመረጡት ጠቃሚና ሰፊ ሃሳብ ሊሰጡ ይችላሉ ብለን ካሰብናቸው ውስጥ አንዱ በመሆን ነው። ይህ የምርምር ቡድን ውይይት ከ 30-50 ደቂቃ ለወስድ ይችላል። ፈቃድዎን በተመረከዘ ሁኔታ ሁሉም ቃለመጠይቆች በድምጽ መቅረጫ ይቀዳሉ። ሆኖም በጥናታዊ ቡድኑ የሚሰጡ መረጃዎች በሙሉ በከፍተኛ ጥንቃቄና በሚስጥር ይጠበቃሉ። የተሳታፊው ስምምነት አድራሻና ሌሎች ግላ መረጃዎች ለሌላ ወገን በሚታተሙ የዚህ ጥናት ጽፍም ሆነ ሪፖርት ላይ አይገለጹም። መረጃውን ለሌላ አካል መግለጽ አስፈላጊ ቢሆን እንኳ ያለእርስዎ የጽሁፍ ፈቃድ እና ፊርማ አይደረግም። ከዚህ ጥናት የሚገኘው መረጃ ጥቅም ላይ የሚውለው ለምርምር አላማ ብቻ ነው። እኔ ባለኝ ግንዛቤ አንጻር ይህ ጥናት በምርምሩ ተሳታፊ ላይ የሚያስከትለው ወይም ሊያደርስ የሚችለው ምንም አይነት አካላዊ ስነልቦናዊ ህጋዊ፣ ማህበራዊ ጉዳት የየለም። ነገር ግን በአንጻሩ ጥናቱ ለማምጣት የሚያቅደው የአጠቃላይ የህብረተሰብ ጤና መሻሻል በተዘዋዋሪ ሊጠቅምዎት እንደሚችል ይታመናል። በዚህ ጥናት ላይ የሚኖርዎት ተሳትፎ በፍጹም በፈቃደኝነትዎት ላይ የተመሰረተ ነው። ጥናቱንም በየትኛውም ጊዜ አቋርጠው የመውጣት መብትዎ የተጠበቀ ነው። ከዚህ በታች የሚያኖሩት ፊርማ ስለትናቱ ምንነትና ስለአካሄዱ በቂ ግንዛቤ አግኝተው በፍቅር ፈቃደኝነትዎ መሳተፎን የሚያረጋግጡበት ይሆናል። በተጨማሪ ቢያስፈልግዎ የጥንቱን ዋነኛ ተመራማሪ በሃዋሳ ኑቨርሲቲ ተመራማሪ የሆኑትን ረ/ፕ አንዳርጋቸው ካሣን በ ስልክ ቁጥር 0911-338805 በመደወል ማግኘት ይችላሉ።

ለመሳተፍ እስማማለሁ	<input type="checkbox"/>	
አልሳተፍም	<input type="checkbox"/>	<div style="display: flex; justify-content: space-between;"> <span>ፊርማ</span> <span>ቀን</span> </div>
ተመራማሪው/ የረዳት ተመራማሪው ስም	ፊርማ	ቀን

## Annex-XI: Amharic version consent forms for FGD and IDI

### የስምምነት ፎርም ለ አንድ ለአንድ ቃለመጠይቅ ጥናት ተሳታፊዎች (Consent for IDI participants)

ውድ የጥናቱ ተሳታፊ አስቀድሜ በጥናቱ ለመሳተፍ ስላሳዩት ፈቃደኝነት ልባዊ ምስጋናዬን አቀርባለሁ። የዚህ ጥናት አላማ የጥናቱ ተሳታፊዎችን በእርግዝና እና ወሊድ ወቅት በእናቱ እና በሚወለደው ጽንሰ/ልጅ/ ላይ የሚከሰቱ የጤና ቀውሶች ለመከላከል የሚሰራውን የቅድመ ጽንሰት ጤና ክብካቤ አገልግሎት በመንግስት ጤና ተቋማት እንዳይሰራ ምክንያት የሆኑትን ጉዳዮች በዝርዝር ለማጤን የታሰበ ነው። በጥናቱ ላይ የተመረጡት ጠቃሚና ሰፊ ሃሳብ ሊሰጡ ይችላሉ ብለን ካሰብናቸው ውስጥ አንዱ በመሆን ነው። ይህ የቃለመጠይቅ ጥናት ከ 15-30 ደቂቃ ለወስድ ይችላል። ፈቃድዎን በተመረከዘ ሁኔታ ሁሉም ቃለመጠይቆች በድምጽ መቅረጫ ይቀዳሉ። ሆኖም በጥናታዊ ቡድኑ የሚሰጡ መረጃዎች በሙሉ በከፍተኛ ጥንቃቄና በሚስጥር ይጠበቃሉ። የተሳታፊው ስምምነት አድራሻና ሌሎች ግላ መረጃዎች ለሌላ ወገን በሚታተሙ የዚህ ጥናት ጽፍም ሆነ ሪፖርት ላይ አይገለጹም። መረጃውን ለሌላ አካል መግለጽ አስፈላጊ ቢሆን እንኳ ያለእርስዎ የጽሁፍ ፈቃድ እና ፊርማ አይደረግም። ከዚህ ጥናት የሚገኘው መረጃ ጥቅም ላይ የሚውለው ለምርምር አላማ ብቻ ነው። እኔ ባለኝ ግንዛቤ አንጻር ይህ ጥናት በምርምሩ ተሳታፊ ላይ የሚያሰከትለው ወይም ሊያደርስ የሚችለው ምንም አይነት አካላዊ ስነልቦናዊ ህጋዊ፣ ማህበራዊ ጉዳት የየለም። ነገር ግን በአንጻሩ ጥናቱ ለማምጣት የሚያቅደው የአጠቃላይ የህብረተሰብ ጤና መሻሻል በተዘዋዋሪ ሊጠቅምዎት እንደሚችል ይታመናል። በዚህ ጥናት ላይ የሚኖርዎት ተሳትፎ በፍጹም በፈቃደኝነትዎት ላይ የተመሰረተ ነው። ጥናቱንም በየትኛውም ጊዜ አቋርጠው የመውጣት መብትዎ የተጠበቀ ነው። ከዘህ በታች የሚያኖሩት ፊርማ ስለትናቱ ምንነትና ስለአካሄዱ በቂ ግንዛቤ አግኝተው በፍቱም ፈቃደኝነትዎ መሳተፎን የሚያረጋግጡበት ይሆናል። በተጨማሪ ቢያስፈልግዎ የጥነቱን ዋነኛ ተመራማሪ በሃዋሳ ኑቨርሲቲ ተመራማሪ የሆኑትን ረ/ፕ አንዳርጋቸው ካሣን በ ስልክ ቁጥር 0911-338805 በመደወል ማግኘት ይችላሉ።

ለመሳተፍ እስማማለሁ	<input type="checkbox"/>		
አልሳተፍም	<input type="checkbox"/>	ፊርማ	ቀን

ተመራማሪው/ የረዳት ተመራማሪው ስም		ፊርማ	ቀን
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## Annex-XII: Amharic version semi structured questionnaire to the Qualitative study (IDI guide & facilitation to FGD)

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1. በሃገራችን ያለውን ከመጻኅነት ከወሊድና አርግዝና ጋር ያለውን የሚከሰተውን ጉዳት (እነደ እናቶች ህመምና ሞት፣ ያልታሰበ እና ድንገተኛ ውርጃ/ጭንገፋ፣ የአካል መጉዳል፣ የጽንሰ ሞቶ መወለድ፣ ፔሪናታል ዴዝ፣ ኒዎናታል ዴዝ፣ የጨቅላ ህጻናት ሞት፣ ዝቅተኛ የወሊድ ግዜ ከብደት፣ ያለጊዜ መወለድ ወዘተ...) ችግር መጠን እና አሳሳቢነት እንዴት ይገልጹታል ?
2. በኢትዮጵያ ከመጻኅነት ከወሊድና አርግዝና ጋር ያለውን የሚከሰተውን ጉዳት ለመቀነስ ምን እየተደረገ ነው ያለው?
3. ሥለ ቅ/ጽ/ጤ/ክ እና ጤና ሪኮመንዴሽን ምን ያውቃሉ ?
  - ካላወቁ በአጭርና ግልጽ ማብራሪያ ይሰጣቸዋል
4. የ ቅ/ፅ/ክ አገልግሎት አሰጣጥ በአገሪቱ በምን ያህል ደረጃ ላይ ነው ያለው?
5. የ ቅ/ፅ/ክ አገልግሎት በአገሪቱ አገልግሎቱ መሰጠት አለበት ወይ? ምን ያህል አስፈላጊ ነው?
6. የ ቅ/ፅ/ክ አገልግሎት በአገሪቱ በጤና በባሎዎቻች እንዳይተገበር ተጽእኖ ያደረጉ ነገሮች ምን ምን ናቸው?
7. በአገሪቱ የ ቅ/ፅ/ክ አገልግሎት በጤና በባሎዎቻች እንዲሰጥ ምን ይደረግ?
8. አገልግሎቱ በማን ይሰጥ?
9. አገልግሎቱ የት ይሰጥ?